XIX.

VOL. III. OCTOBER, 1849. NO. I.

THE

WESTERN JOURNAL,

OF

AGRICULTURE, MANUFACTURES, MECHANIC ARTS,
INTERNAL IMPROVEMENT, COMMERCE,

AND

GENERAL LITERATURE.

Agriculture and the Mechanic Arts are the basis of Civilization.

M. TARVER & T. F. RISK,
EDITORS AND PROPRIETORS.

ST. LOUIS:
PRINTED AT THE ST. LOUIS UNION OFFICE, 35 LOCUST STREET.
1849.

PUBLISHED MONTHLY, AT THREE DOLLARS PER ANNUM, IN ADVANCE.

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BOOK AND JOB PRINTING

ESTABLISHMENT,

No. 35 LOCUST STREET between Main & Second,

ST. LOUIS, MO.

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ART.—I.—PACIFIC RAILWAY—THE BOSTON PROJECT.

The remarks contained in the August number of the Western Journal, in reference to the Boston project of a railway from St. Louis to San Francisco, have called forth a communication from a committee of citizens of that city in defence of their scheme: the respectability of the source whence this project orignated entitles it to consideration, and we cheerfully comply with the desire of the committee in giving their address a place in our journal, but in doing this we must be allowed to discuss such points, as in our judgment appear objectionable.

It cannot be expected that any one scheme can be devised that will meet the entire approbation of all who are friendly to the principal measure; and hence a free discussion of objectionable points may be regarded as necessary to produce unity of sentiment, and concert of action. The following address containing the plan referred to, was submitted to a public meeting of the citizens of Boston by P. P. F. Degrand, Esq., in April last, and was unanimously adopted.

RAIL ROAD FROM ST. LOUIS TO SAN FRANCISCO.

TO THE PEOPLE OF THF UNITED STATES.

FELLOW CITIZENS:

"*I propose that a company* (COMPOSED OF MEN, IN WHOSE INTEGRITY AND STEADINESS OF PURPOSE, CONFIDENCE CAN BE REPOSED, BY THE NATION,) be chartered by Congress, to construct a Rail Road from St. Louis to San Francisco, with a capital of 100 Millions of dollars, and that this company, (after having paid in $2,000,000,) shall have the right to borrow United States 6 per cent. Stock, to such an amount, (not exceeding $98,000,000,) as may be sufficient to finish the Road and carry it into full operation, with a double track.

I propose that Congress give to this Company, a strip of the Public Lands, 10 miles wide, on the North side of the Road, and the Land for the bed of the Road, and for Depots, and the right to take, from the Public Lands, Wood, Gravel, Stone, Iron, and other materials, necessary to construct the Road.

THE ADOPTION OF THIS PLAN WILL SECURE THE COMPLETION OF THE ROAD, IN AS BRIEF A SPACE OF TIME, AS MAY BE PERMITTED, BY ITS PHYSICAL OBSTACLES:—AND WILL SECURE THIS BY A SINGLE ACT OF CONGRESS, free from the chance of future freaks of Legislation. THIS IS THE DISTINGUISHING FEATURE OF MY PLAN,—*and it is free from the objection of absorbing the private resources of active men;—and free from the risk of halting, in this great work, at every step, for want of tangible means.*

I propose that, immediately after the Surveys are made, the Company proceed *to construct this Rail Road on the whole Route*, going to work, at once, on as many different parts as practicable and building at difficult points, *temporary Rail Roads*, to be used while the permanent Rail Road is constructing:—and actually *bringing into use* the various portions of the Road, *as fast as completed.*

The Company being thus in possession of tangible means, and acting under a sense of the imperative necessity of giving to the public the facilities of Rail Road travelling, as fast as practicable, will very soon reduce to a moderate distance, the inconveniences of a Land Journey to California, and will secure the completion of the entire line, in the briefest period practicable:—and in the interim, the Mail-Stage and the traveller, by the Land-Route, by following, as near as convenient, the Track marked out for the Rail Road, will avail themselves more and more, every day, of the comfort and protection, naturally incident to the incipient stages of civilization, which accumulate on the line of a Rail Road, from the very moment it is begun, to the day of its completion.

I propose that, while the Road is constructing, A LINE OF TELEGRAPH BE ESTABLISHED, as far and as fast as practicable, to transmit intelligence for the purposes of the Road, and for the Government, and for the public generally.

I propose that no stimulus, stronger than Cold Water, be allowed to be used, by the officers and men, employed by the Road, or by the Contractors. This Rule has been found of inestimable value, in Building and carrying on the New England Rail Roads, in the construction of the Boston Water Works, and in the Navigation of New England vessels.

I propose that, at points of any difficulty, two separate sets of men (relieving each other,) be employed, to secure the continuation of the work, *night and day*, and that, *at the most difficult points*, three separate parties of men (working, each of them 8 hours a day,) be employed, *to secure continual work, without interruption, either by meal-times or by night*, employing, in all cases, as many men, as can work to advantage, and having all sorts of work going on, at the same time, for the purposes of the Road, both on the Route of the Road, and elsewhere; so that there may be no delay, which can be avoided. *This course was pursued, in bringing the Waters of Cochituate Lake, into Boston, from a*

distance of 20 miles, through two summits and great physical obstacles :— and in the unprecedentedly short space of 2 years and 2 months, from the day the first spade struck the ground, to begin the work, the City and its Citizens found themselves, in the full use of the water, flowing through a work, calculated to endure for ages.

The importance, in a pecuniary point of view, of using the Road, *at an early day*, is shown by appendix B, by which it will be perceived, that *the extra expense of travelling, between the United States and California, is estimated at* $67,750,000 *a year, over and above what it will be after the Rail Road is in use.*

The arguments, in favor of the plan, are fully elucidated in the appendix. By moving for this plan, the friends of the measure will, by one single effort, Viz., "the passing of the act," secure the completion of the Road, in the shortest possible time ; whereas, if they adopt any plan, which relies on funds created by the Sale of the Land ; or on a large amount of funds, from private individuals ; or on funds to be, from time to time, appropriated by Congress,—they will impose upon themselves the never-ceasing labor of Sisyphus, and by the delay waste enormous sums for the Nation.

To secure the Loan of the United States Stock, made to the Company, and to secure the carrying forward, in good faith, of the contract made with the Company, the United States may, if they desire it, take a mortgage of the Road, and its appurtenances ; take 1–3 of the stock ; and appoint one third of the Directors, following the precedent so successfully practiced, by the State of Massachusetts, in the case of the Boston and Albany road, (commonly called the Western railroad,) in which case, as in the contemplated charter, the railroad Company do provide punctually for the payment of the interest on the public funds Loaned to them, and also are to provide, and are providing, by a sinking fund, (and occasionally by extinguishment by purchase,) for the Payment, at maturity, of the Principal of the Public Loan.

The $98,000,000 of the United States 6 per cent. Stock, loaned to the Company, being Coupon Stock, payable in London, will, (as have the Massachusetts Sterling 5's, in the case of the Western Road,) furnish, at any time of need, Exchange on England, to be sent there, in lieu of our specie, and operate as additional capital, to be used by the Citizens of the United States.

The $98,000,000 of United States Stock, loaned to the Company, (being made payable at the Rate of $2,000,000 per annum, after 50 years,) will be paid off, by the Company, with perfect ease, either by actual Profits or by the creation of new Stock, to represent the amount paid off.

THE OTHER DISTINGUISHING FEATURE OF MY PLAN IS THE CREATION, BY A SINGLE ACT OF LEGISLATION, OF ONE HUNDRED MILLIONS OF DOLLARS OF AMERICAN LABOR, BY ORDERING, IN THE VERY CHARTER, THAT THE MATERIALS USED IN THE CONSTRUCTION OF THE ROAD SHALL BE EXCLUSIVELY OF DOMESTIC ORIGIN. THESE ONE HUNDRED MILLIONS OF TANGIBLE MONEY WILL NATURALLY, DIRECTLY OR INDIRECTLY, BE DISTRIBUTED TO PAY FOR THE LABOR, THE MANUFACTURES, AND THE

AGRICTLTURAL PRODUCTS OF EVERY STATE IN THE UNION, AND WILL SET THE WHOLE INDUSTRY OF THE WHOLE COUNTRY IN MOTION.

The moment this Rail Road is made, it will be the great thoroughfare for the Mail and for passengers, from Europe to the Pacific and to India. The saving of interest (by the saving of time) and the saving of insurance, for gold and silver and for valuable goods, will secure to the Nation a great profit and a vast trade.

Whether we consider this Rail Road as an indissoluble bond of Union between greatly distant parts of our widely extended Empire; or as a means of averting European Wars and Wars with the Indian Tribes; or as a means of transporting the Mail and communicating Telegraphic intelligence; or as a measure of Internal Commerce, so vast, so varied, as to defy all precedent; or as a measure for National Glory, obtained without waste of blood or treasure, by constructing and completing, in a brief space of time, the Great work of the Age,—we are irresistably led to the conclusion, that National Glory and National Interest alike dictate the adoption, at the earliest day, of a measure calculated to obtain, for the present generation, the honor, which posterity will award to those who secure, for all future ages and by this single act of Legislation, the immeasurable benefits flowing from the existence of this Great Work."

P. P. F. DEGRAND.

We fully appreciate the importance of securing the means of carrying out this great work against the "freaks of future legislation;" and we admit that all works of this nature can be accomplished at less cost, and in a shorter time, by individual enterprise than by the general Government; but there is, in our opinion, an insuperable objection to Mr. Degrand's scheme, for it may be regarded as certain, that no act of incorporation can be obtained from Congress for this purpose; and we look upon any cheme which is based upon such an expectation as perfectly hopeless. But even if no doubt existed in respect to the power of Congress to create a corporation for this object, still, we think there are strong objections to the policy of its doing so. Will the people of the United States consent that $100,000,000 shall be placed in the hands of an incorporated company, and that this company shall control the transportation of all the commerce between the valley of the Mississippi and the Pacific ocean? For ourselves, we have none of that instinctive horror of corporations, which seems to afflict many people of the United States. So far from this being the case, we regard corporations as important agents of civilization; and in many respects necessary to its advancement. But corporations are animated by but *one idea*, and in cases where dividends constitute the main object of the corporators, this idea is pecuniary; and in carrying it out, their conduct is rarely ever restrained, or modified by patriotic or moral considerations; and as much as we desire the construction of a railway to the Pacific ocean, we should object to its

being built upon a scheme that would place so vast a power in the hands of an incorporated company. If such a measure be practicable, we certainly prefer that a sufficient provision for the completion of the work should be made by one act of legislation; but we feel no considerable apprehension from this source, for if the friends of this great enterprise shall act with reference alone to the interest and glory of the nation; if the measure shall be separated from, and elevated above party politics and sectional prejudices; if no false or disingenuous representations shall be made in respect to the probable cost, or utility of the work; and if, with a reasonable degree of information in regard to the principal facts connected with it, the people of the United States should require Congress to appropriate the public domain to the purpose of carrying it on, we should have strong confidence that such an act would be respected by all parties, and that the work would progress to its completion, without serious embarrassment from the "freaks of future legislation."

The history of the national road, of the New York canal, and other State works, has been cited to show how little confidence is to be placed in American legislation in regard to such subjects; but these cases afford no evidence that Congress would pursue a similar course in a case where the circumstances are materially different. The progress of the national road depended upon appropriations from the treasury; and in addition to the strong sentiment entertained against the constitutionality of the measure, it became involved in the revenue questions of the times, and shared in the vicissitudes incident to all party measures. The prosecution of the work on the New York canal required a large increase of the State debt—a policy that is always liable to be assailed with success; for, while high taxes afford a powerful argument to the demagogue, prudent and conscientious statesmen are ever cautious in urging measures calculated to increase the public burthens, against the objections of a respectable minority. But, in appropriating the public domain to the purpose of constructing a railway to the Pacific, we have no constitutional objection to encounter; we make no direct demand upon the treasury of the nation, nor is there any ground to apprehend that the measure will become involved in party questions; and if Congress should dedicate the public lands to the construction of this railway, and the route should be so located as to accommodate, and unite the interest of all parts of the Union, we should have as much confidence in the permanency of the appropriation as we have in the stability of our institutions.

But if the friends of this great measure still doubt the national faith, then let them ask Congress to grant to the State of Missouri a sufficient quantity of land to construct the road from the Mississippi river to the western border of the State, and also to California a quantity sufficient to construct the work from its eastern boundary to the Pacific ocean. These two sections of the road will cost, perhaps, three fourths of the whole amount required to complete the enterprise; and if this should not be deemed a suffieient guaranty, then establish a new territorial government between Missouri and California, and grant lands to that for the same object. This, we think, will remove

the great danger which Mr. Degrand and his friends so much desire to avoid. We do not propose this as a necessary feature of the measure, but make the suggestion to show that it is practicable, by one single act, to place the means for constructing the work beyond the "freaks of future legislation," without creating a corporation.

Although we have admitted, that the sagacity of individuals, enable them to carry on works of this nature at less cost than can the general or State Governments, yet, we are far from believing that the difference can possibly be so great as the amount claimed by the Boston company, for undertaking to construct a road from St. Louis to San Francisco. The following are some of the items in their bill of charge: In the first place, they ask the loan of $98,000,000, and, if we rightly understand their scheme, they expect to pay the principle, as well as the interest, from the earnings of the road; and this can be effected in a very short time, if Mr. Degrand's calculations should be realized; for, he estimates the annual income from travel alone, at over $10,000,000. And when the debt is thus paid, the road with all its profits and appurtenances, is to belong to the company; this item may therefore be set down at $100,000,000. Secondly, they ask a slip of land ten miles wide, on the north side of the road, extending throughout the line, from the State of Missouri to San Francisco, a distance of at least 2,000 miles, though Mr. Degrand estimates the whole distance from St. Louis, at but 1,600 miles. This slip would contain about 12,000,000 acres, an area nearly three times as large as the State of Massachusetts. We give no opinion in respect to the value of this land, but we are satisfied that a large portion of it is worth but little, at least in its present condition. Mr. Degrand, however, estimates that the construction of a railway increases the value of land $50 per acre, for the distance of two miles on each side of the road; this is his estimate for a road in Massachusetts; he has not informed us how much the value will be increased on the route to San Francisco, but we imagine, that he cannot value this slip of 12,000,000 acres, with the gold it contains, and the prospect of building up several large cities on it, at less than $100,000,000; and hence we conclude that $200,000,000 is about the amount that this Boston company calculate to make out of the operation; a sum however so trifling, when compared to the amount which they propose to secure to the country, that it is scarcely worth mentioning. For, Mr. Degrand proves by figures, as clearly as figures can prove anything, that this road from St. Louis to San Francisco will save to the country $67,500,000 per annum; and he affirms in capital letters, that, "if we adopt the plan now before Congress," alluding we suppose to Senator Benton's bill, "we shall inevitably delay the completion of the road, more than fifty years;" and proceeds to say, that, "the loss of $67,500,000 a year, amounts in fifty years to $3,387,500,000." Now, it does seem to us, that there must be some mistake somewhere in these calculations: but if they be correct there is only one point left for the consideration of Congress and the people of this country, and that is, whether they will accept of the proposition of the Boston company, or, submit to the utter ruin that awaits us as a nation; for if the country must be subjected to a loss of $67,500,000 a year, for fifty years, it

will become so completely bankrupt and destitute of all the agents and appliances of civilization, that no earthly arm can save it from relapsing into a state of barbarism. Surely no one will grudge the trifling sum of $200,000,000, to save the nation from such a dire calamity.

We have no desire to give a false coloring to Mr. Degrand's project; and lest we should be suspected of exaggeration, we publish the following articles which appear to have been unanimously adopted by the Boston meeting, and are appended to, and published with the address.

APPENDIX TO THE ADDRESS.—(A.)

REMARKS BY P. P. F. DEGRAND, AT COHASSET, AT THE OPENING OF THE SOUTH SHORE RAILROAD, JANUARY 1, 1849.

If we take into view the actual wealth created by the existence of a Rail Road, it will be found that the actual cost of a Rail Road is (as to the whole community) less than nothing. Take, for instance, the South Shore Rail Road. The actual rise of land on its borders, caused by the existence of the Rail Road, cannot be valued, on an average, at less than $50 an acre, for a strip, two miles wide, on each side of the Rail Road. A square mile contains six hundred and forty acres; which gives two thousand five hundred and sixty acres for every mile of the road, taking a strip two miles wide on each side of it.

The rise of $50 per acre on 2560 acres, gives an additional value to the land of $128,000 for every mile of the road. Each mile of the road, therefore, creates wealth to the amount of - $128,000
While the road only costs, per mile, - - - 28,000

Whence it necessarily follows that it costs, in fact, $100,000 per mile less than nothing.

Is not the case demonstrated beyond all doubt and cavil? Will not, in fact, the land very soon rise, in some places, twenty cents per square foot, which makes $8,800 per acre.

This rise of the land, and of other property, real and personal, right and left of a Rail Road, accounts for the facility with which thousands of millions have, within the last twenty years, become tangible, and have been spontaneously appropriated to make Rail Roads of vast extent in all parts of the world; The existence of a Rail Road not only creates the wealth which repays its own cost, but it also creates the means wherewith to build the next Rail Road.

This vast creation of wealth, by the existence of a Rail Road, will easily produce the cost of the railroad line in continuation of the south shore railroad, (via Boston,) to St. Louis, in Missouri, or to some other point in the west, and thence to San Francisco, the centre of the gold region, and the future centre of the trade of the Pacific, and of

India. Private enterprise, aided by donations, from congress, of alternate sections of land, will do much to carry this line to St. Louis, in Missouri. But, farther on, the national arm should, in its might, push unhesitatingly the great work to completion in the shortest possible time. It should do it by the mighty lever of the public credit, thus leaving private resources to fill up the manifold channels of employment opened by our late vast accession to our already vast empire.

From St. Louis, in Missouri, to San Francisco, the distance is 1600 miles. At $66,666 per mile, fully equipped, the railroad will cost $100,000,000. Let a charter with this capital be granted by congress, to a company, in which individuals take the stock and furnish $2,000,000 of the capital, obtaining from the United States the loan of United States stock for the balance. *Let this company be bound to carry the mail and to carry troops and munitions of war, on very reasonable terms*; and let congress also grant them, through the public lands, a strip ten miles wide, on the north side of the road, and let the company be bound to build the road with *American iron* and other materials *exclusively of domestic origin.*

Let us now consider what will be the consequences of such a plan :—

Thus fortified, with tangible means, the road will be built in five years. When built, its very existence will defend our possessions on the Pacific. It will avert all danger of Indian wars, north and south of its line. Upon its bed, a telegraphic wire will enable the government to issue its orders to California and to Oregon, with the rapidity of lightning—and will transmit individual correspondence with the same electric speed.

In case of a declaration of war against the United States by a European power, the instantaneous transmission of the news and of the implements of war, including even seamen, to our possessions on the Pacific coast, will give us the command of the trade of our enemy in the India seas, and enable us to protect our own.

The cost of this railroad will be more than repaid, by the additional value which it will impart to the public lands west of Missouri.

Employing iron and other materials, exclusively American, will give life and animation at once to a great mass of industry, now lying dormant.

The plan now proposed, will finish the road, in the short space of five years, because the money will be easily obtained, by the sale of United States stocks.

Another plan, which is before the public, contemplates to create the money by the sale of the land. But by following that plan, the land cannot be sold, until after the road is built, and the money to build the road, cannot be tangible, until the land is sold. The plan is therefore radically defective. If it be adopted and adhered to, 50 years will not suffice to bring the road to completion.

And what is 50 years, as to the accumulation of interest, while the road is in construction? It is an increase of its cost more than four fold. And what is 50 years, in the onward march of this mighty nation? It is, (judging from the past,) the increase of its population, from 22 millions, its present number, to the prodigious number of 88

millions. And what is 50 years, in the existence of most of us? Alas! it is the passing to the grave of more than two generations.

As to the constitutional power of congress, thus to loan the public credit, to the amount of $98,000,000, there cannot, in this case, be a shadow of doubt; because this loan is made, in pursuance to the clearly defined powers of congress, viz:—

To provide for the national defence:

To provide for the transportation of the mail, (which will be done, both on the land and by lightning:)

To take provident care of the public domain, by increasing its value; by the best known modes of internal communication:

To cement the bonds of union, between parts of this vast empire, which will be thus riveted together, by unceasing intercourse.

Mr. President:—I perceive that you are already convinced, and that you go with me and with my intelligent fellow citizens around me, for a railroad to San Francisco, and for a railroad to be used before most of us shall have departed for another world. Let us then resolve that it shall forthwith be done, and it is done; and let us say:

The south shore railroad—Its extension, via Boston, in the shortest time possible, to San Francisco, by the mighty lever of the national credit.

(B.)

RAILROAD TO SAN FRANCISCO.

[Extract from P. P. F. Degrand's remarks.] When the railroad is in operation, from Boston to San Francisco, the length of passage, for its 3,000 miles, (going night and day, at the rate of 25 miles per hour, including stops,) will, for the express train, be only 5 days.

For 1st class cars, at 2 cents per mile, the fare will be only - - - - - -	$60
For 2d class cars, at 1 cent per mile, the fare will be only - - - - - -	$30

The cost then of transporting, from the Atlantic sea-board, 150,000 persons to California, and of bringing back 50,000 persons from California, will be as follows:—

Fare of 150,000 passengers, 1st class, at $60 each,	$9,000,000
Time and food, for said 150,000 passengers, for 5 days, at $5 per day, say $25 for each person, - -	3,750,000
Fare of 50,000 2d class passengers, at $30 each, -	1,500,000
Time and food, for said 50,000 passengers, for 5 days, at $2 per day, say $10 for each person, - - -	$500,000
Total cost by the railroad line, - - -	$14,750,000

The Express train can be provided with berths and other conveniences, for the night time. It can make short stops, at convenient

places, for meals. It can be provided with newspapers, pamphlets, books, chess-boards, backgammon boards, and other amusements, as is a steam-boat. The cars can be well ventilated, night and day, by Espy's at the top, and can be lighted by lamps, serving also as ventilators. On a portion of the road, they can occasionally have a band of music.

If it be said that all the travellers will not elect to go by the express train, *night* and day, and that there should be, for their time a greater allowance than five days, the reply is, that many of the travellers will, at their starting point, be at the west of the Atlantic sea-board, as, for instance, he who starts from St. Louis, in Missouri. Starting thence, he will spend only about half the time, and pay only about half the fare of him who starts from the Atlantic sea-board; because his journey will be only 1,600 miles.

We may, therefore, safely estimate, that the above amount $14,750,000 will be the average of the whole by the railroad line.

Let us now examine what is the expense, by the sea route, for the same individuals:

To transport, by the sea route, the same number of persons, will cost as follows, part going round Cape Horn, part through the Straits of Magellan, and part through the Isthmus of Panama: —

Passage for 150,000 1st class passengers, at $150 each, - - - - - - -	$22,500,000
Time of said 150,000 passengers, for 100 days, on an average, at $3 1-2 per day, say $350 for each person, - - - - - - -	52,500,000
Passage for 50,000 2d class passengers, at $50 each,	2,500,000
Time of said 50,000 passengers, 100 days on an average, at $1 per day, say $100 for each person, - -	5,000,000
Total cost by sea route, - - - - - -	$82,500,000
Deduct cost by the railroad line, - - -	14,750,000
Clear saving in the expense, - - - - - -	$67,750,000

To this saving we may add the extra risk of life, by the sea route, and the disappointments and extra delays occasionally incident to a voyage by sea.

In point of time, of great hardships and of expense, the route by land, as it now exists, over a trackless waste, compares even more unfavorably with the railroad line.

If, then, we estimate that there will go to California annually, 150,000 persons, and that 100,000 of them will settle there, and 50,000 come back, the annual saving of expense, by having the -rail road, will be $67,750,000.

IN OTHER WORDS, THE SAVING IN TWO YEARS WILL MORE THAN REPAY TO THE NATION, THE WHOLE COST OF THE RAILROAD FROM ST. LOUIS TO SAN FRANCISCO.

IF WE ADOPT THE PLAN, NOW BEFORE CONGRESS, OF BUILDING THE ROAD, WITH THE CASH PRODUCED BY THE SALE OF THE LAND GIVEN BY THE UNITED STATES, (WHICH LAND CANNOT BE SOLD AND REDUCED TO CASH, UNTIL THE ROAD IS BUILT,) WE SHALL INEVITABLY DELAY THE COMPLETION OF THE ROAD, MORE THAN FIFTY YEARS. THE LOSS OF $67,750,000 A YEAR, AMOUNTS IN FIFTY YEARS, TO $3,387,500,000; A SUM SUFFICIENT TO PAY OFF THE WHOLE BRITISH NATIONAL DEBT!

Shall this enlightened nation—responsible as we are for our high fame—tamely submit to this disgraceful and enormous loss? Or shall we avert it and show ourselves worthy of our high destiny, by the simple process of borrowing United States stock, to the amount of $98,000,000; thereby creating the tangible and efficient means of completing this great national work, in the short space of five years?"

Now we do not deny that some of the views contained in the foregoing articles are sound; but we deprecate all attempts to act upon the public mind, by publishing calculations based upon assumptions that must appear absurd to every intelligent individual. Were it possible that the people of the United States could be mislead by such arguments, yet it may be regarded as certain, that they would turn against the measure as soon as they discovered the deception; and even though in the meantime, a charter may have been granted, and the work commenced, it would scarcely protect the company in the enjoyment of privileges obtained by unfair means.

Visionary estimates, published by the projectors and friends of public works, are calculated to excite a suspicion in the minds of reflecting men, that there is either a lack of sound judgement, or a want of fairness on the part of those who thus appeal to the public for encouragement and support; and when that impression is once made it settles into a prejudice that is not easily removed. We have frequently heard the remark, that the project of a Pacific railway was a humbug: some believe it to be a political manœuvre, designed to subserve individual and party purposes; others believe that it originates in the vanity of such as desire to become famous as projectors of a grand enterprise; and there are many who regard the several propositions made by individuals, and companies, as schemes of speculation merely. It is the duty of the true friends of this great enterprise to guard themselves, as well as the measure, against all unjust imputations, and this can only be done by a fair statement of facts, sound deductions drawn from well established principles, and, a determined purpose to preserve it from the control of politicians and speculators. For should the measure be claimed, or adopted, as that of any one political individual or party, it could never rise above the strength of its patrons, and must inevetably fall with their fortunes.

Opinions and prejudices long entertained are difficult to change or remove; and it is folly to oppose them unless there be no other way to obtain our object. And hence we should not only guard against

falling into the hands of a party, but shape our measure so as to avoid, if possible, all constitutional difficulties.

In closing this article we beg to submit the following suggestions, for the consideration of our Boston friends: —

We approve of the proposition to anticipate the sale of the public domain by creating stock, to be ultimately redeemed from that source; and if Congress will adopt this measure, and place the entire management of the work under the control of a board of commissioners, composed of men selected solely with reference to their fitness for the station; the country would, in our opinion, have little cause to complain of their want of economy, either in regard to a judicious application of the means, or the time consumed in carrying out the enterprise. But when the work shall have been completed, it will doubtless be the true policy of the Government to place the operation of the road in the hands of individuals, or companies; and this of itself, will open an extensive field for the enterprise of our Boston friends, which we should be pleased to see them enter upon. But being fully persuaded that the scheme of Mr. Degrand can never recieve the approbation of a majority of the people of the United States, we have deemed it our duty as friends of this great work, to state our objections to his plan in strong and explicit terms, with a hope that he and the friends of his measure, will at once perceive the propriety of abandoning a hopeless project, and bring their zeal, talents, and influence, to bear upon some plan more likely to receive the approbation of the country.

No city on the Atlantic coast, or perhaps, on the continent, is likely to be as much benefited by a railway to the Pacific, as Boston; for if, as many believe, a large portion of the commerce and travel between Europe and Asia should be transported over this route, Boston would in all probability become the great commercial emporium on the eastern shore of the American continent; and we think her citizens are too far-seeing and prudent, to hazard so rich a prize by adhering to a plan which is liable to so many objections.

ART. II.—A GEOLOGICAL SURVEY OF THE STATE OF MISSOURI.

This subject has been many years before the people of the State. Governor Boggs called the attention of the Legislature to it some twelve or fourteen years ago. In 1839 a recognisance of the country bordering the Osage river was ordered and made in connexion with the operations of the then existing Board of Internal improvement. Here the subject rested until the last session when a renewed effort was made, which resulted in the adoption of a memorial to Congress to aid the enterprise. This delay has arisen from the evident incapacity of the State to undertake such a work on her limited resources, and not her indifference or ignorance of its importance.

We propose, in what we have now to say, to show the grounds upon which the aid asked for by the memorial is expected to be granted, and some of the benefits that will result from it, not only to the State of Missouri, but to the interests of the country generally.

In proceeding to discuss this subject, it is not deemed necessary to enter upon a defence of this survey, Such a course would be foreign to our purpose. The beneficial effects such surveys have had upon other States with fewer natural resources, and therefore less likely to be affected by them, is a sufficient evidence of their utility. Geology is, by the common consent of the learned of all countries, admitted to be founded on principles so well established as to entitle it to rank almost as one of the exact sciences. Little inferior to astronomy in sublimity, it is in no wise so in practical importance. Although abounding in materials for theoretical speculation, it is essentially a science of observation, founded on facts, obtained by a careful study of Nature as she unrobes herself to our senses. By the co-ordination of these facts we are enabled to determine the natural resources, the position and relative value of various countries, for agriculture, mining, manufacturing, and commercial purposes.*

The interest the Government of the United States has in the soil of the State of Missouri, justifies the latter in asking and expecting this assistance. The entire area of the State, adopting Sullivan's line as the northern boundary, is 67,380 square miles, or 43,123,200 acres. Of this there was unsold on the 30th of November, 1848, the date of the last report of the Commissioner of the General Land Office, 29,766,740 acres; being more than two thirds of the entire area of the State. The established policy of the Government is to make these lands a source of public revenue. If this could be done with reasonable rapidity, it might be argued that, as a mere land speculator, with one price for her property of all kinds, she has no interest in such a survey in this State. But if the foundation for this argument were true, can we believe that our fellow-citizens in other States are so mercenary, so indifferent to our prosperity, as to justify its use. It is admitted that we live in an age of social civilization, when the progress of one part of a country in improvement reacts and tends to improve the others. Would not the development of the resources Missouri is supposed to possess, have an influence that would be felt in the manufactures and commerce of other States? Would not our national importance and independence be increased, by becoming

* We regret we cannot entirely approve the remarks of the Editors of the Western Journal in their May—August No. (Vol. II. No. 5), in relation to the action of the late Legislature on this subject. These gentlemen have evinced so much zeal in the cause, particularly the junior, as a member of that session, that we can readily excuse, though we cannot approve their expressions of disappointment. It is possible that all was not done that could or ought to have been, but when such a good feeling appeared to exist, we are unwilling to complain. As one of the earliest advocates of this measure. we have had our disappointments, our hopes deferred so often, that we look upon the action of the last legislature with sincere gratification. And we cannot doubt, if its friends will unite earnestly and sincerely in their efforts, another session will not pass without the passage of a law for the organization of the survey.

exporters, instead of importers of the various metals and minerals she is believed to have in her mines? These and many like reasons, we believe, would present themselves to any liberal minded statesman, as sufficient to justify his vote in favor of the donation for a geological survey, even if it were true that the United States Government had no direct pecuniary interest in it.

Although such a survey would not enhance the price of the public lands, we shall show that it would cause the sale of an immense amount of them, in all probability, in a very seasonable time, that is now lying as *dead stock*. The following table exhibits the number of acres of public land in this State, that have been offered for sale or brought into market (up to the time specified in the second column) and the amount remaining unsold on the 1st of January, 1849.

TABLE I.

Land Office.	*Year of offering.*	*Acres offered.*	*Acres remaining unsold Jan. 1st, 1849.*
St. Louis,	1834	3,407,203·74	2,225,102·71
Jackson,	1835	6,515,841·76	5,860,253·27
Fayette,	1835	3,232.643·60	1,421,047·79
Palmyra,	1831	3,267,375·45	1,090,290·21
Clinton,	1832	1,717,290·84	932,985·23
Plattsburg,	1835	1,538,637·74	824,231·09
		19,678,993·13	12,353,910·30

From which we see that of nineteen million six hundred and seventy eight thousand nine hundred and ninety three acres and thirteen hundredths, brought into market on average more than fifteen years ago, twelve million three hundred and fifty three thousand nine hundred and ten acres, and thirty hundredths yet remain unsold. As the Missouri lead mines were ordered to be sold by act of congress dated March 3d 1829, we have taken a date for our table some years posterior to this that we might embrace them. We have therefore a stock in public lands, at government price representing a capital of about fifteen millions of dollars, that have been in market sufficiently long at an interest of 6 per cent. per annum to absorb their original estimated value.

The following table will show the amount of this *dead stock* sold at the several land offices of the State in 1847.

TABLE II.—*Showing the amount of land sold in* 1847, *at the several land offices of Missouri, of such land as had been brought into market during or before the years specified.*

LAND OFFICES.	B'RT. IN MARKET.	ACRES SOLD IN 1847.
St. Louis,	1834	38,626,98
Jackson,	1835	24,465,61
Fayette,	1835	22,381,37
Palmyra,	1831	15,956,22
Clinton,	1832	12,442,36
Plattsburg,	1835	11,472,42
		125,344,96

The sales of 1847, are about an average, perhaps a little in excess: of several preceding years. The sales therefore of the 12,353,910 acres, and distributed over the whole State, remaining unsold January 1, 1849, at the same rate will not equal one and three-tenths per cent. per annum: requiring more than seventy-five years! for their entire disposal, if no other incentive than now exists for their occupation be presented to the public.

But even this is too favorable a view of much the largest proportion of these lands. By a reference to table (I.) it will be seen that more than eight millions of acres of these that are unsold, lie in the St. Louis and Jackson districts; being about three-fourths of the whole amount. In that table was introduced the year up to which the offering of these lands had taken place, not specifying the period of each seperate offering. By the following table (III.), it will be seen that some of these have been in market more than thirty years, and that the average would probably be about twenty-five years.

TABLE III.—Showing the amount offered and the years of offering of the public lands in the St. Louis and Jackson districts, from 1818 to 1835.

ST. LOUIS DISTRICT.		JACKSON DISTRICT.	
Year of offering.	*Amount offered Acres.*	*Year of offering.*	*Amount offered Acres.*
1818	967,738·79	1820	119,992·80
1819	311,823·42	1821	856,649·40
1820	294,015·27	1823	2,472,877·55
1821	502,257·54	1324	1,266,542·63
1823	752,804·66	1828	127,056·92
1824	320,460·18	1831	685,133·25
1831	215,438·89	1832	247,313·98
1834	42,664·99	1835	740,275·23
	3,407,203·74		6,515.841·76

Making an aggregate of - - - - - 9,923,044·50 acres.
Of which remain unsold (see Table I.) - - 8,085,355·98 "

Quantity sold - - - - - - - 1,937,688·52 acres.

The annual average sale assuming twenty five years as the average period they have been in market, was therefore 73,507, 54-100 acres.* This is a little more than the actual sales of 1847 which were—

St. Louis district - - - - - - - 38,626·98 acres.
Jackson district - - - - - - - 24,465·61 "

Total - - - - - - - - - 63,092·59 acres.

This gives: assuming the means: an average of sixty nine hundredths (69-100) of one per cent as the annual amount of the sales of these

*The statistics of this article relating to the public lands, are from the appendix of the report of the Commissioner of the General Land Office to the last session of Congress.

lands in these two districts, that were brought into market during or before 1835. At the same rate it would require one hundred and nineteen years (119)! to dispose of the remainder.

We fear we have already trespassed upon the patience of our readers too strongly by our figures, but as there are many persons who form their opinions of the importance of a country rather upon political than statistical data, we shall submit another table showing the area of several of the states of the Union, by which they will be able to appreciate the relative extent of the territory, thus doomed, if no other system than the present be devised, to more than a century's neglect.

TABLE IV.—*Showing the area in acres of Maryland, New Jersey, New Hampshire, Massachusetts, Rhode Island, Connecticut, Vermont, and Delaware.*

Maryland.	N Hampshire.	Massachusetts.	N. Jersey.	Vermont.	Connecticut.	Delaware.	Rhode Island.
7,040,000	5,139,200	4,640,000	4,384,640	5,120,000	3,040,000	1,356,800	768,000

Here, then, it is seen that the Government of the United States is the proprietor of territory within two only of our land districts greater in extent than the whole State of Maryland—than Massachusetts and Connecticut combined—and nearly equal to New Jersey, Connecticut, and Delaware united, the annual sales of which would not pay the State and County taxes, valuing it at the Government's own price, if the State had the right of imposing such taxes.

And why is it that this condition of things exists? Is this land really so worthless that it will not sell? The very reverse of this is the fact. There is not a more valuable territory within the limits of all the public lands of the United States. It will sustain a denser population from the produce of its own resources, than any other equal area in the Union east of the Rocky Mountains. The writer is well aware that these are bold assertions to be made without some published authority on which to rely. He assumes the responsibility of making them to himself. He has devoted many years to the scientific exploration of, and practical operations in this portion of the State, and therefore has had opportunity more ample than any other person to know its character. He does not present himself as a witness in this case for any feelings of vanity, but because he thinks it his duty. It would have been much more satisfactory to have appealed to other testimony, if it had existed. As a Missourian and a friend to the geological survey, he feels himself bound to assume this position. If the Congress of the United States admit the truth or even probability of this testimony, its own interest in the mere pecuniary advantage to be derived from the more rapid sale of these lands, requires that she should grant the aid asked. If it be rejected, it is a tacit acknowledgment of the belief that they are really worthless. If the latter opinion be adopted, is it just to Missouri, that they should still be held when the annual sales—not the rent—would not pay the taxes that the people of the State are obliged to impose upon themselves for the support of their government? It would be much more

just and fair to abandon them entirely to the State. If this will be done, we have little doubt but that Missouri will obligate herself to complete this survey in the most thorough-manner, without asking one dollar's assistance from any quarter.

There are two other valuable mineral regions, one bordering on the Osage river, the other in the south and south western portion of the state. In geological and mineralogical characters, they are similiar to that of the Jackson and St. Louis districts, and together probably equal the latter in extent. They were not included in our remarks heretofore because having been more recently brought into market, their history does not so clearly indicate their fate. There is nothing however, in their position or character that can justify a hope more favorable for them, than for those that have been longer before the public.

About two fifths of the entire State, say seventeen or eighteen millions of acres, may be set down as the area of its mineral region. It is not so easy to arrive at the amount of these mineral lands remaining unsold on the Osage and in the south western part of the state as we have found it to be for those in the Jackson and St. Louis district, as the districts in which they lie contain a large quantity, without their limits. But little mining has yet been done is that region, and comparatively but a small amount of land entered for this purpose. We therefore think we do not exaggerate in estimating the actual area of all the mineral lands yet held by the government of the United States and of this State at fifteen millions of acres. This is nearly equal to the entire area of the state of South Carolina; about equal to one half of New York or Pennsylvania, and more than the entire area of New Hampshire, Massachusetts, Connecticut, Rhode Island, and Delaware united!

Does the reader start at this as an enormous estimate? Let him examine for himself. Let him lay the map of Missouri down before him, let him trace a line commencing in the southern part of the state where Spring river crosses the western boundary, thence up Spring river to the waters of the Sac, down that to the Osage, along that river to Warsaw, thence north to the head waters of the Laramie, thence east to the Moreau creek, down that to the Missouri river, down the Missouri to a point about 30 miles west of St. Louis, thence across to the mouth of the Merimac, thence down the Mississippi to the Grand Tower, thence southwest-wardly to the point at which the Big Black river crosses the State line. This will give him generally the limits. All that portion of the State lying between this line and the southern boundary of the State, constitutes the *Mineral Region* of Missouri.

Compare this with the most celebrated mining districts of Europe. With the Hartz mountains having an area of only about three hundred thousand acres, equal to about twelve or thirteen of our townships of public land, a region that would be uninhabited but for its mines, sustaining a population of some sixty thousand inhabitants, with several flourishing towns. With the metalliferous mountains of Saxony (Erzgebirge) covering an area of about one and half millions of acres,

a little larger than the county of Crawford in this state—giving support to a population of nearly half a million of souls, with many large towns amongst which is Freyberg celebrated for its school of mines.* Or with Cornwall, with its arid surface of about seven hundred and sixty acres inhabited by about three hundred thousand persons and whose mines produce annually about five million of dollars worth of copper ore, and five thousand tons of tin, besides a large quantity of lead.

What would be the population of this State, what the value of its produce, if its mines were as thoroughly developed as those of Germany or England? Almost every square mile in the mineral region indicates rich metalliferous dposits of the same kind. The climate is salubrious, water power and fuel abundant, and the surface of the country, unlike the arid, rocky and sterile mining regions of most countries, abounds in valuable agricultural lands.

How then is the country to be populated as rapidly and densely as it ought to be. How bring about this development of its resources in a manner most conducive to the great interests of the country? Surely every intelligent mind will concede that the first step to be taken is to investigate, and publish to the world under an authorative form, a true and full statement of its character. The experience of a quarter of a century and more, if we date no further back than the records of the General Land Office, has shown the folly of depending upon individual statements or popular reports. But the mineral reputation of this country existed long before it became a part of the United States territory. It was co-eval with the first exploration of the country by white men. A chart of Louisiana and the course of the Mississippi published in Paris in 1718 indicates this region as "*un pays plein de mines.*" If popular whims or old reports could have availed any thing, this country would long since have been teeming with population and overflowing with wealth. Prudent capitalists require better authority than these, the plain common-sense emigrant looks upon them as fabulous. In fact the antiquity of these rumors and reports do the country injury. Most men very reasonably infer that if they were true, there ought to be better evidence of it than there is yet extant.

A geological survey, made under an authority, and in such a manner as will command the confidence of the public, is the only means by which the true value of this country can be known, and its resources developed. Until it is done, it must remain, as it has been, one of the least productive portions of the public domain to the national treasury.

Thus far we have considered this subject merely with regard to the effect it would have upon the interest of the Government by the amount received from the sale of these lands. Arguments that would be proper, if it were a mere land speculation, whose connexion and even interest would cease with pocketing the money for which they sell. But they have a value far beyond this to the country; a value worthy the consideration of the statesman and political economist; and that will grow with the growth of our great and prosperous

* Vide Villefosse De la Richesse Minerale, Vol. I.

country. Let us turn our eyes but a moment to the Governments of Europe, and see with what care such property has been fostered there; with what a watchful eye its interests are guarded; and how much it adds to the character, wealth, and independence of the country that possesses it. As early as the fifteenth century, the administration of mining affairs was taken charge of by the kings of France. Francis I. declared, in an ordinance, "the working and continuation of the mines greatly concerned the king and the public weal of the kingdom." Henry IV. and Louis XIV. gave the subject their special attention, and the genius of Napoleon perfected the present enlightened and official system of that country. Frederick the Great, in 1772, published an elaborate law on the subject, divided into eighty-eight chapters or sections, evincing the most profound solicitude in relation to the mineral resources of his kingdom; "the discovery, exploration, and employment of which," he said, "must produce essential advantages to the country." In Russia, the exploration of mineral substances were reserved to the sovereign as early as 1718, by Peter the Great. Though subsequently conceded to her nobles and other persons, a guardianship over her mines is still reserved. As might be expected, the mining districts of Saxony, Bohemia, and Hanover, attracted the most sedulous care of their respective governments. In Sweden, the sovereign allows no one to carry on mining without special permission, and reserving to herself the right of supervision. The administration of the mines of Norway is similar to that of Sweden. In Spain, it is much the same.* In fact, every government of Europe seems to be profoundly sensible of the importance of their mineral resources to the public weal. England, though less ostensibly interested, watches these interests with a vigilant eye. Very recently, Parliament imposed a heavy duty on all foreign copper ores, for the protection of her copper mines in Cornwall and elsewhere.† This law, we believe, is still in force. In 1837, the duties previously imposed in favor of the Duke of Cornwall on the tin raised in Cornwall, was abolished, probably, to aid her own mines in their competition with East India tin.

The anomalous action of Great Britain is attributable to the peculiarities of her political organization, and the character of her mineral deposites. Had she been no more favored by nature than other European territory; had not such inordinate wealth been concentrated in a few hands, by her heriditory and monopolizing laws, constantly seeking new objects of investment, and stimulating new enterprises; had her monarchical form of government been more absolute like those of the continent, and her aristocracy less influential and wealthy, either she would have been obliged to adopt the system of the rest of Europe in the administration of her mines, or ere this they would have been ruined. As in so many other matters, her example has had a powerful influence on us, whilst that of other governments has had but little. In other words, we have followed so far the worst system, if system it can be called, without the advantage of the vis-

*Vide. Villefosse. De la Richesse Minerale Vol. I. p 212.
† About the year 1841 or '5.

cious laws and viscious organization of society, necessary to render it efficient and useful. But even Great Britain, after having availed herself of the individual zeal of her Merchisons, her Sedgwicks, her Phillipses, and last of her other most scientific citizens, has found herself obliged to institute a geological survey under her own authority. But we shall have occasion to refer to this matter more fully hereafter.

This uniformity of action of the European governments, must attract the attention of every statesman. It cannot be the result of accident, or preconcert of action. The cause lies deeper. It is intimately connected with the prosperity of their people and the development of the resources of the country. It is true, it is made one of the supports of the respective governments, but this is everywhere avowed and acted upon, as a secondary consideration. If this had been all they sought, a much less complicated machinery would have sufficed. Their schools and councils of Mines; their highly educated mining officers distributed every where, their national and local cabinets, &c., would all have been unnecessary. Whence public opinion *was* so little respected by rulers, it is not probable that such a system would have been adopted, solely for the purpose of mystification. Our late system of mere tax-gatherers would have been amply sufficient, and better suited to their arbitrary governments.

If then, the development of the mineral resources of a country is deemed so important as to attract so much of, and so uniformly, the attention of monarchs, is it less important to a government whose sole object should be the prosperity of the people? Is it furthering the destiny which the Creator seems to have intended for us as a nation, to neglect some of His greatest blessings?

The opportunity we have had of examining the most of the mineral regions of Missouri enables us to give a general view of its resources and character. This we propose to do briefly as it will afford the reader the means of comparing it with some of the most celebrated mineral regions of Europe, of which we will give a short description drawn from the most authentic sources. It is the misfortune of operations of this country that almost every new one presented, has to be started under the presence of a speculative excitement. We here distinctly state that it is under no view of this kind that we have undertaken to draw attention to the subject. Had such been our object we could have long since done so upon the ample materials we have accumulated. We should be sorry to see Missouri made another theatre of mining disasters of which the continent of America has presented so many examples to the world. We wish to have this State thoroughly and carefully examined and the whole of the facts, in relation to its resources laid before the public, before it shall become a scene for the exhibition of the enterprise of the people of this or any other country. This will save us from the procrastiny and injurious influence of reaction, and show to the world that in our representation we are acting in good faith and with honest feelings.

Among the first and most important considerations as to the value of every mining country, is the climate and facilities for producing or

obtaining food for its population. In both of these we have in all probability more advantages than any other important mining region in the world. Every part of this region is salubrious. Intermittent fevers so common in this latitude occurs to some extent it is true, but there are no swamps, stagnant ponds or alluvial bottoms any where in it, as in other portions of the Mississippi Valley, to constitute a permanent cause of this disease. When the country shall have become more settled and its inhabitants in the enjoyment of more of the comforts of civilized life, this will disappear. The latitude and elevation above the ocean,—from 600 to 1200 feet—gives it a more equable and regular temperature than any other portion of the valley. Its elevation enables it to catch the breezes in summer that may be wafted over the vast plains that lie around it in every direction of the compass, whilst the winter colds are tempered to a degree that permits and even invites by its invigoration, the sturdy miner to increased exertion.

Few persons who ascend the turbid Mississippi would be prepared to form a proper conception of its streams. Its myriads of springs bursting forth from their rocky wombs as pure and limpid as the drippings from the melting icicle unite in rivulets that now ripple over gravel bars and anon repose in quiet basins reflecting the foliage of the shaded banks inviting the wearied traveller to a bath, more luxurious and invigorating than all the arts and wealth of Rome ever offered to her most aristocratic citizen. Her streams would create a sigh in the breast of a manufacturer, to see such sources of prosperity wasting themselves away, whilst her rivers need but slight improvement to become the highways of commerce by steam.

Valuable agricultural land exists throughout the whole region and some of her most productive mines have been opened upon spots, that seem almost desecrated, by being converted to this purpose, Even amidst the more *hilly* region of the eastern portion where the water courses have cut their beds deep into the rocky strata to reach the level of their great absorbent the Mississippi, there are numerous beautiful and extensive valleys, that already teem with the productions of cultivation. Wheat, corn, rye and all other grains suited to this climate find here, a congenial soil, and abundantly repay man for his labor. The facility with which the present sparse population sustain themselves by their agricultural pursuits has in fact, been a serious detriment to mining operations. The certainty of the first, from comparatively slight labor, has made it too generally a primary, whilst mining has become only a secondary consideration. Where the rocky hill and hill side, presents no temptation to the farmer, for the use of his plough, nature spreads out a luxuriant growth of grasses and other vegetation as a range for his wandering herds of cattle.

But if ever this country should become so densely populated by a people devoted to mining and manufacturing pursuits, that it could not supply its own food, the contagious agricultural regions of this and other states, will ever be ready to afford it a cheap and abundant supply. It will never need the interposition of government anthority, as in the sterile Hartz, to fix a price for the food of the miner. Na-

ture's God and the industry of Man will do this, without resort to the protection of Legislative action.

The exploration of this country has been too limited to justify us in presuming that justice can be done it, in describing its mineral resources. It will be one of the most important objects of a geological survey to do this, and until it is done, the fact, now possessed will only serve to form an outline as it were of the picture. The known relation of its principal metallic minerals to certain geological formations enables us to arrive at a close approximation of the area over which they may be found, but their variety may be much greater than is yet known, and their quantity can only be judged of by comparing very limited explorations, and surface indications now known with similar regions in other countries. The extensive explorations to which many of the mines of Europe have been subjected have enabled geologists to establish certain laws in relation to mineral veins and deposits, from which inferences, carrying with them the highest degree of probability, may be deduced. There is nothing in the geological or physical character of the mineral region of Missouri to render it probable that what has been found to be true of other similar regions, should not be true here. On the contrary the little disturbance that this region, speaking geologically, has been subjected to, since the deposition of its minerals, as well as the great development of the particular parts of the formation in which these minerals are found, renders it almost certain, indeed we might say absolutely certain that these laws will apply to the mineral veins of Missouri to an extent commeasurate with the extent of the formation itself.

To give a correct idea of what is known and what is probable, of the mineral resources of Missouri, we will take up each one of the more useful and important metals and speak of them categorically.

Gold as the most valuable of course takes precedence. The existence of this metal, in this State is not only not known, but so far as my observation has gone is improbable, except it be in the extremely minute quantities, in which it is frequently found, in the ores of other countries, similar to some of these in this State. If it should be found in this combination, it will never produce the moral effects that *placers* have too often produced, but on the contrary be an incentive to improvement in a metallurgic operations. We fear and we may say we hope too—that those who attempt to find gold in Missouri, will do it, through the modern, not the alchemists, process of transmutation only.

Of *silver*, we are not so destitute. It is true we have not yet found any regular silver mines, and it is even quite probable that none exists. But all of our lead ores contain silver, and some of them a considerable amount. We have analysed lead ore of this state, in which the value of the contained silver was equal to that of the lead and we have not a doubt that its extraction will some day become an important and profitable portion of the metallurgic operations of Missouri. The operation is so cheap and simple that it is not improbable it will be carried on at almost every lead furnace.

Cobalt and *Nickel* in intrinsic value properly comes next to silver amongst the more common metals, but as they are found in such com-

paratively small quantities, they are in the aggregate less important than several others that are much less in price. They would no doubt, both be much more extensively used, and particularly nickel if they were produced more abundantly. It is quite probable that Missouri will greatly increase the supply. There is one mine of them now being worked, that yields a very large produce; and there are indications of their existence, or at least of cobalt in several parts of the mineral region. The fact of its existence to any valuable extent, is of very recent discovery, and at one of the oldest mines in the State. It is very probable that when the indications are properly followed up, it will be found in valuable quantities elsewhere. We have analysed a nickel ore so entirely different from that found at the mine now being worked, just referred to, and so nearly like in all its general appearance to the ore of another metal, very common and almost valueless, that it is quite possible the mistake of the one for the other, may have caused the more valuable one to have been entirely overlooked heretofore.

Copper is destined to be one of the most valuable, if not absolutely the most valuable, metallic productions of this State. This assertion may astonish those who have been in the habit of considering lead and iron as our chief minerals, but we make it upon no vague or immaginary calculations. The ores of this metal are found throughout the whole mineral region; of every variety and generally very rich. Although the workings have yet been comparatively superficial, there is every indication of extensive and heavy lodes, that future operations will carry to depths rivaling the most celebrated mines of Europe. The indications of some of these, we have traced for miles in extent, throughout the most of which distance they passed through public lands subject to entry at one dollar and twenty-five cents per acre! Some of the mines already opened have been very productive. One has already produced from a thousand to fifteen hundred tons, another from six to eight hundred, many others smaller amounts, and yet, regular systematic mining for this metal can scarcely be said to exist. The most productive mines have not yet been penetrated to a greater depth than fifty or sixty feet. The quality of the ore, is such that it needs but little cleansing and is often smelted in the condition it comes from the mine. As yet there are but two or three smelting establishments in the State, consequently it is only in their vicinity that mining operations to any considerable extent is steadily conducted. A popular opinion, sustained as might be expected by the failure of ignorant and incompetent operators, has for some time existed, that the ores of this metal could not be smelted in this country: a debasing and unjust imputation upon the capacity, skill, and intelligence of Missourians. Why should we not smelt copper, as well as it can be done any where else? There is no deficency in the materials, no peculiarity in the ores, no secrecy in the process. Every scientific metallurgist knows the process, and the machinery used in every country; knows the materials he has to operate upon and with, and how to apply them as successfully in Missouri as in Wales or Germany. The suspicion betrays gross ignorance of the subject, and

is insulting to the character of every intelligent American. But we have no fears from the croakings of such persons, if an authoratative exposition of this region can be presented to the public; capital and capacity will combine in spite of it, and the public will only remember to pity such unworthy members of the community.

Lead is a material for which Missouri has a reputation, probably more wide spread than any other of her productions, mineral or agricultural. Mining for this metal was cotemporaneous with the first settlement of the country. Its history will embrace much of the hardships, adventures, and difficulties of the first settlement of the white man amongst the Aborigines of the Upper Mississippi valley. But it has not advanced with anything like the ratio of the settlement of the country: since 1827, it can scarcely be said to have increased at all in this State. Many causes have combined to produce this result. Those who were first engaged in it, "studious of change and fond of novelty" were drawn away in large numbers by the alluring stories of the productiveness of the Galena mines. The more extensive and less exhiustable prospects of this State were abandoned; and new explorations almost ceased. Congressional action, though well intended, had a depressing effect, and the sudden inundation of the world by Spanish lead, reduced the price from which it has never since recovered. Many of our most productive mines have never recovered from these effects. The present produce of this metal is therefore no indication of the extent of our capabilities. The ores of this metal are found everywhere throughout the mineral region, of the best qualities, and with every indication of existing in inexhaustible quantities. Their reduction being the simplest of all metallurgic operations, it needs but a proper knowledge of their extent to render this State the largest lead producing country of the world. No lead mine in this State has ever yet been exhausted, the one that has been worked to the greatest depth — about 260 feet — retains its lode as powerful, and with as favorable indications of persistence as it gave at a less depth. It must be stated that the lead bearing rocks of this State, are geologically lower in the series than those of the Galena, or Upper Mississippi mines, and therefore not subject to the interruption by the sandstone underlying that those of that region present. In fact after years of exploration, we have never been able to find anything below them but the primative rocks, which they mantle in the south-eastern portion of the State. What their thickness and consequently what the depths of ore lodes in other portions of the mineral region it is therefore impossible to tell. There is no reason to doubt but that they will some day, rival in depth as well as productiveness, the most celebrated mines of England or Germany.

Iron is another metal for which the state has a celebrity, but little inferior to that which she has for lead, and she equally well deserves it. There is certainly no state in the Union that can rival her in the quantity and quality of the ores, and facilities for the manufacture and transportation of the manufactured article. Her mines or rather mountains of specular oxide, are to be numbered amongst the most extraordinary productions of nature. To say that they are inexhaus-

tible, no more idea of them to say that space is immense. The celebrated mines of Elba, Sweden and Norway, are scarcely comparable with them. But this metal is by no means confined to the vicinity of these extraordinary deposits. Like lead and copper, it is found throughout the whole mineral region, and even extends to the coal formation occupying the rest of the State. The time is not far distant, when these iron deposits must be much more extensively wrought, or the Mississippi valley will have to seek a larger portion of its supply of iron in the markets of Great Britain. Already the foundries of St. Louis, import a considerable quantity of Scotch pig, the most inferior of iron, at a price at least double what it could be made for in this State, of the best quality.

Tin is a metal of whose existence in this State there is still much doubt. We have seen many specimens, said to have been made from ores found here, but we have never been able to obtain a specimen of the ore itself. A portion of our formations certainly bear a very close resemblance to the tin-bearing rocks of Cornwall, and of the existence of wolfram, (tunstale of iron and manganese,) a very constant attendant on tin ores in other countries, there is no doubt. Not wishing to claim for Missouri more than she certainly is entitled, we class this metal as yet uncertain. If a Geological survey should render its existence certain in workable quantities, its discovery would more than repay the country for the whole cost of the survey.

The ores of *Manganese* are very abundant, and will no doubt become an important object of exploration. *Zinc* ores, in the form of Columine and Sulphuret, are also frequently found in mining for Lead. As yet, they are considered valueless; but with the development of Metallurgic information which the manufacture of the other metals will produce, will no doubt be converted to profitable uses.

We have thus rapidly run over the most important metallic mineral productions of the State, or rather the mineral regions, leaving out the non-metallic, many of which will ultimately become very valuable. Our object is not so much to give a full view of its resources, as to present such facts as will enable us to compare it with several of the most important mining regions of Europe. So little is known on the subject, generally, we believe, by our citizens, that such a view is necessary to enable them to do justice to the natural resources of their own country.

We shall select, for description, the *Hartz Mountains*, *Cornwall*, and the metallic mountains of Saxony, (*Erzgebirge*,) as they are not only the most celebrated and best known, but because, in the variety of the mineral productions, they more nearly resemble the mineral regions of our own State.

Hartz.— As before observed, the area of this mining region is about equal to five hundred square miles, (thirteen square myriameters, *French*,) or about two-thirds the size of the county of Franklin, in this State. We draw our description of it from *Heron* de Villefosse, who held the office under *Napoleon*, of "Inspector General of the mines and smelting establishments of conquered countries," and whose elabo-

rate work, "De la Richesse Minerale," is deservedly considered the highest authority on all such subjects.

This celebrated mining region is situated at an average elevation of about two thousand feet above the level of the ocean; its most elevated point, the *Brocken*, rises to the height of near three thousand five hundred feet above the summit level. About two-thirds of it is covered with pine, (*pinus abies*,) with a little oak and beech; on the more elevated portions vegetation languishes, and trees entirely disappear on the Brocken. The aspect of the country is rude and picturesque, the air lively, and the temperature extremely variable during the summer season. From the rigors of winter to the heat of summer the thermometer (Reaumur) varies from twenty-five degrees below to twenty-five degrees above Zero. The winters are always long and cold. The Brocken is ordinarily covered with snow from the commencement of November to the last of May. There is no spring season in the Hartz; neither grains, fruits, nor vegetables, (except potatoes,) are cultivated. Food is brought from the plains below, and at a great expense. The only means of existence, is the exploration of the mines, and without them it would be uninhabited.* Its population is about sixty thousand, its mineral productions, silver, copper, lead, and iron, of which it produces annually as follows:—**

Silver,	- 35,000 marcs.†	Lead,	- 13,500,000 lbs.
Copper,	- 38,000 lbs.	Iron,	- 45,000 tons.

The value of which is about one million eight hundred thousand dollars.

Except silver, the productions of the Hartz, therefore are the same as those of Missouri. If we deduct 270 thousand dollars (8 dollars a marc,) for this metal, and ten thousand from its population as the proportion engaged in the extraction of this metal; we shall have the annual productions of this country from its mines of iron, copper, and lead, the same as those known to exist throughout the mineral region of Missouri, (and who can say they are any better?) amount to the sum of one million five hundred and thirty thousand dollars, and supporting an industrious and hardy population of fifty thousand people. As the area of the Hartz is only about one fiftieth (1-50) that of the mining region of this State, it would give for the latter, at the same ratio, a population of two millions and a half, and an annual produce of seventy-six millions five hundred thousand dollars; not estimating the agricultural population or productions.

Cornwall.—Some discrepancy exists amongst the authors we have consulted as to the area of Cornwall. The London Encyclopædia states it as from actual measurement at 758,484 acres. McCulloch's geographical dictionary gives it at 851,000 acres. About 200,000 acres of the interior are unenclosed and waste lands, affording scarcely sufficient pasturage for a miserable breed of goats and sheep. The surface of the country is undulating and remarkably dreary, with

*De la Rechesse's minerale vol., pages 54, 55, and 212.

†A marc is a half pound.

**Geologic applequee par A. Burat, page 195.

some picturesque valleys, smiling in a romantic diversity of corn woods, coppices, &c. The soil is extremely variable, and farming conducted in a rude manner, though much improved of late years. Being almost surrounded by the Atlantic, its temperature is very equable, the winds, however, are very variable and often violent; and the air being surcharged with moisture, harvests are late and the fruit of an inferior flavor. Grain and potatoes are the principle objects of Cornish agriculture.

Cornwall destitute of mountains, properly speaking, has however a low chain of ridges, called the Ocrinian, which forms its axes, rising into rounded summits that rarely exceed 1000 or 1400 feet above the level of the sea. These summits, which are granitic, are flanked and enveloped on their sides by a series of argilasceous and talcese slates, called in the language of the miners killas. These with numerous dikes of porphery breaking through them, constitute the principal rocks of the country, and in them chiefly are found its mineral treasures.

It is evident that such a country has but little advantage over the Hartz in furnishing its own supply of food, whilst it is much inferior to it in fuel; the scarcity of the latter, obliging the shipment of the ores of one of its most important metals to a neighbouring territory to be smelted.

The principal produce of the mines of Cornwall, are tin and copper, with some lead. As the exportation of the tin ores from Cornwall, is prohibited by law, they are all smelted there, as are also we believe the lead ores. Those of copper after having been picked and prepared until they average about 8 per centum of copper are shipped to Wales, to be smelted.

The following is about the annual average produce of these three metals:

	Tons.	Value.
Tin - - - - - -	4,500	$1,750,000.
Copper Ores - - -	150,000	4,400,000.
Lead - - - - -	600	36,000.
Total - - - - -		$6,186,000.

In round numbers we may therefore estimate the annual metallic produce at six millions of dollars, of which about one fourth is from tin, of whose existence in Missouri we are not at present assured.—But Cornwall produces no iron, and but a very small quantity of cobalt, zinc or other metals of which we have such favorable indications. In the hasty comparison we are now drawing these may well be thrown in as an offset for the tin. In 1831 the population according to McCulloch was three hundred thousand. It is not probable that the increase has been very rapid, we shall therefore assume the present population at 350,000 thousand. Adopting McCulloch's figures for the area (851,000 acres) the mineral region of Missouri is about (21) twenty one times as large as Cornwall, assuming also that the produce of its mines would bear a corresponding ratio in value, and the

country sustain and require only the same ratio of population for working them and for agricultural and other pursuits, the capabilities of this part of Missouri alone would be to sustain a population of seven million three hundred and fifty thousand inhabitants producing annually one hundred and twenty six millions of dollars worth of metallic materials in their rudest state!

Saxony.—The metallic mountains of Saxony (Erzgebirge) cover according to Villefosse about fifty nine square myriameters, equal to 2278 square miles, or one million four hundred and fifty-eight acres. These mountains along almost the whole of the south and south-east frontier, nowhere rising to an elevation of 4000 feet above the level of the ocean. Their declivity is more gradual and undulating on the Saxon, than on the Bohemian side, so that they cover the greater part of the country with their ramifications. Saxony has a milder climate than most parts of continential Europe in the same latitude, the mean temperature of the year is about 47 degrees Fahr.; that of the winter quarter being 34 degrees, and of the summer 59, at an average of the whole country, which has a mean elevation of about 1100 feet above the ocean. The country has fine agricultural capacities and is well cultivated, notwithstanding which however, it is necessary to import a considerable amount of grain to supply the consumption of the people. There are about 500 mines opened giving employment to about 15,000 miners. The annual produce of these mines is as follows:

Silver -	65,000 marcs	Copper -	2,700,000 lbs.
Lead -	2,700,000 lbs.	Cobalt -	1,000,000 lbs.
Tin -	880,000 lbs.	Iron -	11,000 ton.

The principal objects of exploration in the mines of Saxony are silver. Tin and cobalt, lead and copper being only accessory. They differ therefore considerably from those of Missouri, and do not afford us the same facilities for comparison. Besides the value of the cobalt being determined, by the condition to which it is brought by manufacturing, leaves us without the means of estimating its worth as a mineral.

This country certainly presents a stronger resemblance to southern Missouri in its climate, physical characters and agricultural capacities, than Cornwall or the Hartz, and if for the purpose of comparison of population we assume Missouri capable, of which there is no doubt it is of sustaining a like ratio we should have our mineral region occupied by about eight millions of souls.

We are well aware that the parallel we have attempted to run between the mineral regions of Missouri and those three celebrated European mining regions, is very imperfect. This must necessarily be the case, even amongst those mining districts where long exploration has settled the quality and comparative quantity of the produce. Government, climate, people, country, and even the rocks in which the minerals are found — all are subject to great differences, and modify the value of the mines. In all of these, Missouri has every thing that can be desired. There is nothing, so far as these accessories are concerned, to prevent her mining operations from being as well and as profitably conducted as they are or can be in any other part of the

world. What, then, prevents their development? Nothing, that we can conceive of, but reliable information in relation to them. Is it not the interest of the Government of the United States, that this information should be obtained? Is it not of far greater national importance that this region should be inhabited by a population of five or seven millions of souls, adding every year by their labor, from seventy-five to one hundred and twenty-five millions of dollars to the produce of the country, than that it should be unoccupied, and as useless as a barren desert?

We have lengthened this article much beyond what we expected when we began, and therefore do not feel disposed to tax our readers further with the crowd of reflections that the subject presses upon us. We have, we trust, said enough to enable every intelligent mind to see and feel, as we do, the importance of this survey, not only to the State, but to the whole Union. In our next we shall show that Missouri has a right, in strict justice, to expect that the aid asked for from Congress, for this purpose, should be granted.

ART. III.—HISTORY OF THE AMERICAN FUR TRADE.

BY J. LOUGHBOROUGH ESQ., OF MISSOURI.

CHAPTER IV.

Discovery of the North West coast—Balboa—Magellan—Cortez—Spanish voyages to the North West coast—Scheme of Peter the Great—Catharine 1st—Voyages of Behring and others—first voyage from America to Asia—establishment of trade across the Pacific—Jealous policy of Spain—resisted by Elizabeth—English Buccaneers—Adventures of Oxenhave—Voyage of Drake—Voyage of Cooke—Origin of Russian fur company—Russian Amreica—Adventnres of Capt. Sutter to California—Organization of the Russian Company—Remarkble escape of some Polish exiles from Kamschatka.

The discovery of the northwest coast of America was a consequence of the successive attempts which followed the immortal expedition of Christopher Columbus, to discover a western passage to India. In the year 1513 Vasco Nuncy de Balboa, one of the most daring adventurers of an age celebrated for its maratime discoveries, beheld for the first time from the isthmus of Darien, the measureless expanse of the great ocean of the west. This interesting discovery gave rise to the famous voyage of Fernando Magellan a Portugese in the service of Spain who passed through the strait which now bears his name into the western ocean to which he gave the name of the

"Pacific" because of its freedom from the violent storms of other great seas. Over this ocean he pursued his way to India, *thus solving the great geographical question whether the earth was a sphere and capable of being circumnavigated.*

During the absence of Magellan the wealthy and splendid monarchy of the Aztecs which had been discovered some years previously by a party of adventurers from the Spanish colony on the island of Cuba was conquered by Hernando Cortez the greatest captain of the age and brought under the dominion of the crown of Spain. It does not come within the scope of our design to enter upon a detail of all the Spanish voyages of discovery along the northwest coast of America; but as many of these voyages were undertaken for the purpose of opening trade with the natives, and as it is upon the discoveries then made that the title to Oregon derived to us through our treaty with Spain is founded it will be interesting to the reader to have their results briefly summed up. The first of these expeditions were fitted out by Cortez himself, his restless ambition prompting him constantly to new conquests and new discoveries. The others were set on foot by his successors in the government of new Spain (as Mexico was called) chiefly under direct instructions from the Spanish ministry. It will suffice here to state that between the years 1528 and 1595, no less than six considerable voyages were made from several points on the west coast of Mexico, under the command successively of Maldonado, Mendoza, Gryalvo, Cortez himself, Ulloa, and Alarcon, and that in these voyages the Spaniards touched upon various points upon the coast as far north as the 43d degree; and *thus acquired an indisputable right under the law of nations to the whole coast as against other civilized people*; and that in 1774 and from that year to 1779 three more voyages were made under Perez Heceta and Arteaga and Bodega as high north as Nootka Sound. These last voyages *all preceded the discoveries of any other power on this coast between the* 43*d and* 53*d degrees.*

The Czar Peter the 1st of Russia whom posterity has justly surnamed the Great having entered into a treaty with the Emperor of China for commercial intercourse between his Asiatic possessions and the latter country by caravans, conceived at the same time a gigantic scheme of ambition. This was to ascertain whether the continents of Asia and America were or were not united at the extremity of Kamschatka; and if they were, to invade the establishment of the French the English and the Spaniards on the latter continent by directing his military forces by that route. The ostensible and subsidiary purposes of the Czar, were the extension of geographical knowledge and the encouragement of the fur trade. Unhappily for the fame of the great prince, and the welfare of a people whom he had raised from the depths of barbarism, death cut short his career before this magnificent project could be realized. But upon his death-bed he drew up, with his own hand, instructions to Admiral Aprasin, and an order to have them carried into immediate execution. His widow and successor, Catharine the First, appreciated and respected the great design of the Czar, and resolved to carry it into effect. Under her orders the first voyage of discovery was made by Vitus Behring, (a Dane,) who sailed

from Kamschatka in July, 1728, and followed the coast of Asia northwards into the Arctic Sea, passing through the straits which have since received his name, and within a few leagues of the American continent, but without being aware of the fact. In the ensuing year he attempted to sail directly east, but was driven back by storms. In June, 1741, Behring again sailed from Avatscha, by public authority. In this voyage, he discovered and named Mount Saint Elias, the highest peak upon the continent, being 18,000 feet above the level of the sea; and passed through the Aluetian Islands, touching the continent as low down as the 53d degree. During this voyage Behring died, and his vessels were taken home by the second in command. These voyages made known to the people of Eastern Asia the valuable furs of the north-west coast of America; and thus originated the fur trade there, which has grown up slowly to its present importance. Several other voyages were subsequently made by the Russians, but none of much consequence. *It is on these that the title of Russia to American soil is founded.*

After a number of abortive attempts by the Spaniards, to acquire a permanent position in the east, they at last succeeded in doing so. In 1564, the Phillipine Islands were subjugated by Miguel de Lagaspi, who made *the first voyage from the west coast of America to Asia.* In these islands the Spaniards forthwith established solid military stations, and opened a direct trade from the west coast of America to the East Indies.

In that age the Popes of Rome assumed the authority of dividing out, by their Bulls, all newly discovered lands. The authority of his Holiness to do so, was, for a long period, acquiesced in by all the European powers, and by none with more zeal than the monarchs of Spain. Founding their right upon these grants of the Pope, the Spaniards, for a long time, enforced a rigid exclusion of all other powers from the whole Pacific ocean. The system worked well enough for a short period, but when the English threw off the Papal yoke, they immediately commenced taking measures to encourage their traders to round Cape Horn. Queen Elizabeth formally demanded of the Spanish Crown the recognition of the right of her subjects to navigate any part of the ocean. But her demands having been resisted, this wisest and haughtiest of queens, as well as most jealous and termagant woman, immediately asserted their rights, by furnishing them with every facility for, and inducement to, the violation of the Spanish regulations.

This policy of the British Queen, gave birth to one of the most remarkable classes of men who have figured in maratime adventure. In a short time a large number of vessels were fitted out by private individuals, with the purpose of cruising in the Spanish Main, as the West Indian and adjacent seas were called, manned by a set of daring, reckless, and unprincipled men, with the avowed design of robbing, taking, and sinking every Spanish vessel upon which they could lay their hands. As their conduct was countenanced by their own government, they did not incur any other danger than that to be apprehended from the power and the courage of their enemies; and this was laughed to scorn by these bold buccaneers. For many years the

free-booters cruised through the Spanish islands, destroying shipping, murdering their prisoners, and plundering the colonies upon the coasts. At length, one of these reckless rascals, named John Oxenhave, wearied of the life upon the Spanish Main, where prizes of great value were becoming scarce, resolved to cross the Isthmus, build a vessel, and cruise in the Pacific with the hope of laying hands upon some of the rich galleys which then plied between Acapulco and the Phillipine Islands. The inroad took the Spaniards so much by surprise that Oxenhave succeeded in capturing a number of valuable cargo's before any measures could be taken to arrest his progress. This adventurous scoundrel with his crew finally fell into the hands of the Spaniards by whom they were ignominously executed.

Their dreadful fate was amply revenged by Sir Francis Drake, who sailed from Plymouth in December 1577, with five small vessels procured and armed by himself and other private individuals, for the express purpose of making a predatory voyage into the Pacific ocean. The governments of England and Spain were at peace, but this fact did not deter the former from giving every encouragement to these plundering excursions. In the fall of 1578 Drake passed through Magellan's straits. Soon afterwards his little squadron was dispersed by a storm leaving him with only one schooner and about sixty men. This calamity did not deter him from the object of the expedition, on the contrary it prompted him to more vigorous and active efforts. After plundering and burning with ruthless malice every ship he could find, and every Spanish settlement at which he could land, he determined to seek a northern route for his return to England. For this purpose he coasted along as high up as the 38th degree when he suddenly diverged directly across the Pacific to the Phillippine islands from whence he made his way by the usual Portugese route, and arrived in England in September 1580 reaping the honor of being the first navigator who had sailed entirely around the Globe.

But it was not until after the celebrated voyage of Capt. Cooke upon which he sailed in July 1776 that the immense wealth to be acquired by the fur trade on the northwest coast became fully known to the people of England and America. The details of this great voyage are too well known to need repetition here. The journals of the expedition were published at London in 1785. The information they contained respecting the abundance of the finer furred animals on the north-west coast attracted the attention of enterprising men in all the maratime countries. At that period the fur trade was carried on exclusively by the English and the Russians, the former from its possessions in the northern and eastern portions of the American continent and the latter from Siberia and other northern districts of their immense empire. The Russians then conveyed their furs to China over land. Those obtained by the British found their market in Europe only; no shipment to the east having as yet been undertaken.

The Russians were the first to take advantage of the rich fund of information supplied by the voyage of Cooke from whom they had derived it during the stay of the British vessels at Petrapalowk and Unalashka. In the years 1781 an association was formed by Gregory

Schelikoff, Ivan Galikoff, and other principal fur merchants of Siberia and Kamschatka. They equipped their vessels for a voyage of trade and exploration which sailed from Ochtatsk in August 1783, under the command of Schelikoff. This expedition lasted for three years, during which time they proceeded as far south as Prince William's Sound, and several colonies and factories were established, and especially one on the large Island of Kosciusko. The Russians however treated the natives with great barbarity. In 1787 they also erected trading posts on the shores of Cook's river. In 1825 the company possessed a capital of £260,000. Their factories are collections of huts surrounded by palisades similar to those constructed by the Bay company. Russia claims in virtue of the settlements and discoveries of her subjects and of treaties with the United States and Great Britain all the coasts and islands of America north of the parallel of 54° 40′, and so much of the continent as lies west of the 141st meridian of longitude from Greenwich. This portion of the continent presents the most savage and gloomy appearance. Above a long line of hills covered with pines and birch, rise naked mountains shrouded with enormous masses of ice which frequently roll in avalanches from their summits, descending with terrific sounds to the vallies and ravines, crushing in their course whole forests, and damming up streams and rivulets.

In the year 1839 the charter of the Russian American fur company was renewed for twenty years. This Company have attempted some settlements farther south for the purpose of supplying themselves with grain and vegetables; but its attempts have proved unsuccessful. One of these was a location near the Bay of San Francisco. About the year 1830 this establishment consisting of a number of cattle with agricultural implements and a number of pieces of artillery was sold to Capt. Sutter, a gentleman of enterprising character, who emigrated from Jackson county, Missouri, and established himself there where by the exercise of alternate kindness and authority he has succeeded in inducing the Indians to become a peaceable and industrious people. Until the commencement of the American settlements in Oregon the Russian supplies were furnished by the Hudson's Bay company.

The inhabitants of the islands are all regarded as the immediate subjects and serfs of this company. The other natives are free except that they are not permitted to trade with any other people, and a portion of them near Cook's Inlet and Prince William's Sound, are compelled to pay an annual tax in furs and skins. The company confine themselves exclusively to the fur trade. They have about twenty-six trading establishments. The furs and skins are collected either by hunters in the immediate service of the company, by taxes upon its subjects, or by trade with the free aborigines. The furs are transported to Petropawlowsk in Kamschatka, or Ochotsk in Siberia, and thence over land to Russia, or by permission of the Chinese government to Canton, and occasionally to other parts of Europe. In 1826 the number of Russians in this territory was 730—the native subjects of the company were fourteen hundred and forty-two *half-breeds* by Russian fathers and native mothers—and about eleven thou-

sand aborigines of the Island. The number of the natives upon the continental territory is unknown, but it must be very small. The number of vessels belonging to the company in 1840 was 12, measuring altogether fifteen hundred and sixty-five tons.

For the convenience of trade the company have divided their territories into six distinct districts, each of which is placed in charge of an agent whose duties are similar to to those of the overseers of *the Beats* of the Bay company; and the whole of them are superintended by a Governor General who resides at *Sitka*, the capital. Then ames of those districts are *Sitka*, *Kodiak*, *Michaelof*, *Aliaska*, *Unalashka*, and *Aetha*.*

In the year 1771, a party of individuals, chiefly Poles, were confined in the garrison of the small town of Bolcheretsk, in Chamskatka, where they had been exiled for political offences, soon after the disgraceful partition of Poland by the European powers. Among these exiles was a Hungarian count, named Maurice de Benyowsky, who had been an officer in the Polish service, and was exiled for the part he acted in some of the efforts of that unfortunate people to recover their liberty and nationality. Many years after the incident we are about to relate, the memoirs of the count, written out by himself, were published in London, and contain, among a variety of other surprising adventures, the following facts.

Benyowsky, having watched, with strict attention, all the movements of their guards, and contrived, by some means, to inform himself of the fact that a vessel was lying in the harbor, and that there was a prospect of success, imparted his scheme to his companions in exile, by whom it was warmly approved. At the appointed time, a bold effort was made, by these desperate men. The garrison was overpowered by them, after which they took possession of the vessel, loaded it with furs, and such other plunder as they could lay their hands upon, and put out to sea. As they had no compass, they steered pretty much at random. At the outset they were driven northward as far as near the 66th parellel, and during this part of their voyage they frequently saw the coasts of the old and new continents, and touched at a number of the Aleutian Islands. At Behring's Isle they discovered another party of fugitives, like themselves, who had escaped to this desolate spot, and taken possession of it, under the command of a Saxon; and at Unalashka, the largest of them, they found the crosses, with the inscriptions, erected by Krenitzen, in 1768. Turning southward, they touched at the Kenile, Japan, and Loochoo islands, and at Formosa; and finally, in September, they arrived at Canton. *This was the first voyage made from the north-east coast of Asia to a port southward, frequented by European vessels;* and they took *the first furs which ever reached any part of China by sea.*

Count Benyowsky subsequently engaged in a variety of other romantic and daring adventures, the principal of which was the last. This was an attempt to make himself sovereign of Madagascar. He

* Further details may be found in Mr. Greenhow's History, but the author deems them unnecessary here.

landed upon that island, where he figured largely for some time, and took upon himself the title of king; but he was at length killed by a French expedition from the isle of Bourbon, at the head of a party of Europeans and natives, at Foul Point, in that island. The truth of his narrative was, for a long time, much questioned, but his statements have been considerably confirmed by more modern navigators.

CHAPTER V.

Scheme of John Ledyard—Commencement of trade from Oregon to China—Voyages of Hanna and Peters—of Lowrie and Guise—Tipping—King George's Sound Co.—The Sea Otter Boston Co.—Voyage of Meares—Voyages of Martineze and Haro—Nootka Sound Convention—Voyage of Vancouver—Expedition of Metcalfe—His difficulties at the Sandwich Islands—Sacrifice of a sailor to their Gods—Destruction of 150 Islanders—Plunder of the Fair American, by the natives—Murder of young Metcalfe—Gov. Young—Jemmy Doolin's history and adventures.

The next attempt to profit by the results of Cooke's voyages, was the one made by John Ledyard, the celebrated traveller. He had served as one of Cooke's crew, and had thus become fully informed upon the subject. In 1782, Ledyard escaped from a British vessel near New York, in which he had been compelled to serve against his own country. Soon afterwards upon his representations to Robert Morris the great merchant, and famous financier of the American Revolution, the latter agreed to fit out a vessel to be employed under his direction in the fur trade of the north Pacific. The pecuniary embarrassments of Mr. Morris, rendered the attempt abortive, and Ledyard proceeded to France, in 1784, where he endeavored to interest and obtain the assistance of that Government in his scheme. Although they refused to give him any encouragement, the French ministry did not fail to take advantage of the information derived from him, by instructing La Peyrouse to explore the north-west coast, in order to obtain farther information respecting the fur trade. Ledyard, subsequently, by the advice of Mr. Jefferson, undertook an overland journey through Kamschatka, intending to cross Behring's straits, and return across the continent to the Atlantic sea-board. After proceeding as far as Irkutsk, although he had been furnished with a passport, through the influence of Mr. Jefferson, he was suddenly arrested by order of the Empress, with the characterestic jealousy of that Government, and conveyed to the frontiers of Poland, where he was liberated and enjoined never again to set foot upon the Russian territory. Most probably this was done through the intervention of the Russian fur company. On the 15th of the following November, Ledyard's ambitious and adventurous career, was end-

ed at Cairo, (Egypt,) on his route in search of the source of the Nile, under the auspices of the African association of London.

The first individuals who actually engaged in the direct trade between the north-west coast and China, were British subjects sailing under the Portuguese flag. False colors were assumed, because in that age of darkness and monopoly in commercial enterprise, the East India company were incorporated with the exclusive privilege of trading into the eastern seas beyond the Cape of Good Hope; and the south sea enjoyed a like exclusive privilege in respect to the Pacific ocean beyond Cape Horn. The first of these voyages were made by James Hanna, in 1785, and by Capt. Peters, in 1786, but without any profitable results. Similar abortive voyages were made in the year following, by Captains Lowrie and Guise from Bombay, and Captains Meares and Tipping from Calcutta, under the flag of the East India company.

In 1785, an association was formed in London, called the King George's Sound company. They entrusted two ships to Captains Dixon and Portlock. The object of this company was to monopolize the direct trade between the north-west coast and China. For this purpose they purchased a license of the south sea company, and their agents were instructed to ship the furs to Canton, where they were to be assisted in the sale of them by the agents of the East India company, in accordance with a contract made with them; and the proceeds invested in teas and silks for the European markets. Portlock and Dixon proceeded to the north-west coast where they found Capt. Meares frozen up in Prince William's Sound. The latter alleges, that he was inhumanly treated by them; but they solemnly avow, that they rendered him every assistance in their power. Be this as it may, after collecting a large cargo of furs, they directed their course to Canton, where they found the market so glutted (probably from Russia,) that their prospects of profit was quite slender; and this fact taken in connection with the frauds which they asseverate were practiced upon them by the agents of the East India company, occasioned so much loss that the very expenses of the voyage could not be covered. In the meantime, previous to their return, the company in London with their imaginations filled with golden dreams, fitted out two other vessels and placed them in charge of Captains Duncan and Colmett, who followed the course of their predecessors, and ultimately incurred a similar loss from like causes. These disasters disheartened the company and they abandoned the enterprise.

In the year 1780 the sea otter was first introduced into the market of China. The skins brought such enormous prices that a number of American and British expeditions to the northern islands of the Pacific, to Nootka sound and the northwest coast were immediately undertaken. The trade in the sea otter so far as the Americans were concerned was carried on principally from south Georgia; up to this time nearly one and a half millions of skins have been taken from that island alone, and nearly an equal number from the island of Desolation. The discovery of the south Shetlands in the year 1818 added aston-

ishingly to this trade. The number taken from thence in the years 1821-2 amounted to three hundred and twenty thousand. At certain seasons these amphibia, for the purpose of renewing their coats, ascend the rocks and precipices where there is no trace of vegetation, and there remain near two months without sustenance when they return much emaciated to the sea.

In the year 1787 some merchants of Boston formed a company for the purpose of combining the fur trade of the north Pacific with the China trade as attempted by the King George's sound company. To effectuate this scheme the ship Columbia of two hundred and twenty tons burthen, and the sloop Washington of ninety tons burthen, were fitted out at Boston and laden with blankets, knives, tin ware and other articles adapted to the trade with the Indians. The Columbia was commanded by John Kendrick to whom was given the direction of the expedition. The master of the Washington was Robert Gray. They were provided with sea letters issued by the Federal Government with passports from the state of Massachusetts—and with letters of recommendation from the Spanish Minister. The two vessels sailed in April 1787. The Washington made the northwest coast in August 1788 near the 46th parallel where she was grounded in attempting to enter the mouth of the Columbia river, and then furiously attacked by the savages who killed one of her crew and wounded the mate. She then succeeded in escaping and making into Nootka sound. Her consort the Columbia having been separated from her in a storm did not succeed in reaching this place until some time subsequently. Here they remained a number of months and then sailed west to the East Indies with furs. Whilst at Nootka the occurrences which led to the rupture between England and Spain took place, and Gray and Kendrick witnessed the whole affair.

In 1786, the Spanish government, becoming very jealous of the operations of the fur traders on the north-west coast, determined to put a stop to their proceedings. At first, an attempt was made to monopolize the whole trade, by despatching an agent along the coast, with an ample capital to purchase the whole of the skins from the Indians; but this scheme failing for want of means, and in consequence of the superior energy of the rival traders, more decided and efficient measures were resolved upon. The Viceroy of Mexico, acting under the order of the council of the Indies, despatched Estéran Martinez and Gonzalvo Haro, with two armed vessels, to follow the coast, warn off the traders of other powers, and, if necessary, assert the sovereignty of Spain by force of arms. They proceeded as high as Nootka Sound, on the west side of Vancouvier's Island, where they found a number of American and English vessels. Here they landed, and erected some temporary works for occupation. In a short time after, Capt. Cobnett, who was employed at Macao, by a new company of traders — put in charge of a vessel for Nootka Sound, and instructed to land there and erect a fort for the occupation of the agents of the company — arrived in Friendly Cove. Upon landing, and making his purpose known, the design was objected to by the Spanish officers, and they decoyed the Captain on board their vessel, where they made him prisoner, seized

his vessel, the Argonaut, with her crew, disarmed them, and conveyed them as prisoners to San Blas. Besides this vessel, some others were also seized by the Spanish commandants. The important results of this decisive movement, were most probably but little anticipated.

Three years subsequent to these events, the governments of Spain and Great Britain having, in the intermediate time, been informed by the parties concerned, of what had occurred, entered into a recriminating correspondence, which well nigh ultimated in involving the two powers in open war, and would have done so, but for the peculiar relations of France to the two powers. Spain, feeling herself in imminent danger of an immediate rupture, made a formal call upon the King of France, for the aid stipulated for in the *Family Compact* between the two branches of the House of Bourbon. The call found Louis the 16th in the midst of the terrible revolution in which, at a later period, he was dethroned and beheaded, and, of course, in no condition to do more than submit the subject to the consideration of the National convention, then virtually the sovereign authority. During the progress of the negotiation, the democratic tendencies of the French Revolution were so rapidly developed, that Mr. Pitt became solicitous to avoid a rupture with Spain, and, if possible, to lay the foundation for an alliance, in the continential whirlwind of which he foresaw the approach. His agent was, therefore, so instructed that the French were flattered with the idea that they were the umpires in the controversy, and the Spaniards still more flattered with the notion that Great Britain was deferring to her demands. The negotiation, thus ably conducted, eventuated in the treaty of the Escurial, signed on the 28th October, 1790 — known generally to history as the Nootka Sound convention. *This is the first treaty or convention ever entered into by civilized powers, respecting any portion of the north-west coast of America.* In this treaty, the Spanish claim to the exclusive commerce of the Pacific was abandoned, and an equal right to trade upon the north-west coast secured to both parties.

For the due execution of this treaty, Captain Vancouver was despatched by the British government to Nootka. In addition to this duty he was ordered to survey the whole coast, from the 35th to the 66th parallel; to ascertain generally, the character of the natives, and their condition, *and especially to discover if any water courses could be found, the heads of which approached sufficiently near the Rocky mountains to establish a commercial connection between the territories of Great Britain east and west of these mountains.* This last sentence the reader is desired to bear in mind, because, in a future chapter of this work it will become our duty to correct a considerable error which an author of distinguished abilities has fallen into.

The second adventure in the fur trade of the north Pacific from the United States, was that of Captain Metcalfe, who sailed from New York, in the brig Eleanora, in the year 1788, bound for Canton. At Canton he purchased a small schooner, which he named the Fair American, and placed in charge of his son. After winding up his affairs, himself and son made sail for the north-west coast. They arrived at Nootka Sound in November, 1789, where the schooner was

seized by the Spanish commandant, Martinez. Unfortunately for her crew, she was soon liberated. On the voyage from the American coast, the two vessels were, by some accident, separated, and the Eleanora, in the ensuing January, put into a small bay in Mowee, one of the group of the Sandwich Islands, where she anchored. The same night her boat and a seaman, who happened to be asleep in it, were carried off by the natives. The following morning the whole shore swarmed with the islanders, fully armed and painted, according to savage custom, in such manner as to strike terror into the beholder. They manifested an evident disposition to take the vessel, if possible. One of them was detected in an attempt to tear off a piece of her copper, supposing, as he subsequently confessed, that this would occasion the vessel to sink. The audacity of the natives at length proceeded so far as to exhaust the patience of Captain Metcalfe, and he fired upon them a round of grape shot; and then landed and burnt their village. Some days afterwards, he had proceeded farther up the bay, with the view of taking in water, and whilst there, a native came on board the vessel, and proffered, for a reward, to return the boat and the missing sailor. His offer was eagerly accepted by the Captain, who felt much sympathy for the unfortunate seaman. On the following morning this native returned with some pieces of the boat, and some of the bones of the sailor, who had been cruelly sacrificed to some of their bloody deities, and with consummate assurance, demanded the promised reward. It was an exquisite piece of impudence, and well deserved prompt and signal revenge, but the Captain deemed it prudent to pocket the insult, and comply with the demand for the sake of peace. The effect was precisely the reverse of what was anticipated. The Islanders, imagining that they had intimidated the ship's crew, manned a large number of canoes, and again surrounded the vessel. Metcalfe, becoming exasperated, fired all his guns, charged with grape shot and nails among them, and killed, as was estimated, more than one hundred and fifty, and then set sail for Owyhee. Whilst the vessel lay here, the natives signally avenged the destruction of their brethren at Mowee.

On the 5th February the Fair American anchored on the north side of the island near thirty miles from her consort and commenced trading with the natives. The conduct of the natives exciting no suspicion, they were permitted to enter the vessel at their pleasure. A chief named Kamamoko came on board with the professed design of presenting the captain with a feather cap as a compliment. Whilst pretending to place the cap upon young Metcalfe's head he seized and threw him overboard when he was instantly killed. All the seamen with one exception were killed in like manner and the schooner was then drawn on shore and rifled. The natives denied that at the time of this massacre they had any knowledge of the affair at Morveo, and the chief stated afterwards that it was by way of revenge for ill treatment previously received of young Metcalfe. The Eleanora was saved from a similar fate by John Young, the boatswain, who remained upon the island and subsequently became Governor of Owayhoe. This is the same individual whose executive character is mentioned by Mr. Irving in his astoria.

The mention of Governor Young, brings to our recollection the story of another eccentric, an Irishman named Doolin who was also a sailor on board the Eleanora, but who did not take a fancy to the life of a savage until a much later period. In the spring of 1843 the emigrating company having some days the start of us, we entered the Indian territory alone, and travelled some days ere we overtook the caravan. The second morning of our trip we awaked at day-light, and confess we were alarmed as well as astonished to see an old man of the rudest appearance and a fierce aspect. This singular looking being eyed us for some time with a fixed and steady gaze, without betraying the slighest apparent feeling, although our own countenance must have evinced violent emotion. Suddenly he started up as if from a reverie, and inquired gruffly whether we were about going to the emigrating company. Finding that we were, he remarked that he would bear us company. No proposition could have been more disagreeable at the moment, but this proved one of the frequent instances in which our first impressions lead us into false conclusions; for in the same space of time, we have never before or since derived more of information and amusement in our life. It seems that this strange individual was a boy on board the Eleanora when John Young left her to join the natives; and he stated that nothing but fear saved him from following the fortunes of that queer adventurer. Upon the return of the vessel to the United States, he again shipped as a seaman on board the Columbia, of Boston, commanded by Capt. Robt. Gray. The Columbia sailed in Sept. 1790, and arrived at the entrance of the strait of Fuca early in the spring of 1791. She remained along the coasts until the September following, engaged in trading and exploring. This voyage of Gray was the one during which he ascended the Columbia river some distance; *and upon this fact much of our claim was based, in our late controversy with Great Britain respecting boundaries.* At Clyoquot the crew of the Columbia remained during the winter, where they erected on the shore a defence from Indian depredation, which they named *Fort Defiance;* and employed themselves in building another small vessel, which was launched and named the *Adventure.* Whilst preparing for sea, they were visited by Tatuchseatiurs and Wicanish, the principal chiefs of the neighboring country, between whom and an Islander the captain soon discovered rather a suspicious intimacy. Upon threatening and questioning the Islander, he finally confessed that the Indians had proffered to make him a great chief if he would wet the primings of all their guns at a particular time, and thus enable them to seize the vessel. After this the savages were kept at a distance. Here commences the curious portion of our Irishman's history. One night some days previous to the sailing of the vessel, he was occupied near the stern, in arranging some small articles of his own. It was cloudy, but not absolutely dark. In turning suddenly around to answer the call of a mess-mate, he struck his foot against a block, and ere he had time to take a thought, found himself under the surface of the ocean, heels upwards. When he succeeded in reaching the surface, he discovered that the current had driven him some distance from the

vessel, and he therefore determined upon making the shore as the only hope of restoration. Here, however, the Indians were lying in ambush on the watch for prey. He was immediately seized, and claimed by Wicanish as his slave, without hope of future liberation; for these Indians enslave only those whose heads are round, their notion being, that the true mark of aristocratic birth and education is a flat head, and it was evidently too late in the day to remould that of the Irishman's. He was transferred from tribe to tribe, until he reached the Oakinagar river, where he actually remained until after the establishment of Frazer's trading post, on the river of that name. The spokans being round-headed, restored him to liberty, gave him a wife, and naturalized him. By these traders he was found, and eventually carried across the continent to Canada. But the habits he had acquired among the Indians, could not be thrown off. He never after went to sea, but lived wholly with the Indian tribes in Canada, roving from one band to another. When we saw him he was making his way back to Oregon, to end his days with his first red friends the Spokans.

In the north Pacific the direct trade between the American coasts and China remained almost exclusively in the hands of the Americans until the year 1814, when the condition and future prospects of this trade were totally changed by the late war with Great Britian. At the former period British merchants were restrained from engaging in this trade by the opposition of the East India company, the Russians were not then admitted into the ports of China; and few ships of any other nation were ever seen in that ocean. The only rivalry experienced by our traders was the overland trade carried on from Siberia into China in accordance with the arrangements of Peter the Great with the Emperor of China.

We have not attempted to enter into the details of these expeditions by sea for the prosecution of the fur trade, although they are full of incidents of the most interesting character. Our space would not allow us to do so. Nearly all of them however were designed to carry out the same system of trade which was to carry goods to the northwest coast, exchange them with the natives for furs, proceed thence to Canton, again exchange the furs for tea and silks, and finally return with these articles for the supply of the European and American markets. We have only noticed the fact of their arrival on the northwest coast for the purpose of marking the progress of the fur trade. Those who have a taste for such reading may find all these voyages scattered through a multitude of collections of that kind.

ART. IV.—SCOTCH AGRICULTURE.

The following is the conclusion of a series of interesting articles on Scottish agriculture from the pen of George B. Davidson, Esq., of Illinois. The writer has given an excellent turn to his subject and in its application to the condition of this country has illustrated some of the more important principles of political economy in a manner so simple and clear that the most stupid and prejudiced minds must perceive and appreciate the importance of encouraging the useful arts at home, instead of looking abroad for the most common articles of convenience and comfort. We cannot too highly recommend the study of these articles to our western readers.

SCOTTISH AGRICULTURE APPLIED.

BY GEORGE B. DAVIDSON, OF ILL.

Introduction--Advantages of a home market--Means of enhancing the value of land--Establishes mutual dependence between the producer and consumer--a distant market decreases the value of lands--Manufactures--Importance of establishing them in the west--Extracts from Marryatt's Diary--comparison of manufacturing and non-manufacturing countries &c.

In commencing our articles on Scottish agriculture, we stated that our chief object was to excite an inquiry into the causes of land being more valuable in Scotland than in Missouri, or any of the western states? and also whether the means are attainable, by which the latter may be made as valuable as the former. It will be seen, by our first communication on this subject, that the Scotch farmer pays a high annual rent for the privilege of the soil, and this rent the productions of the farm must be adequate to discharge. Hence there is an absolute necessity for a ready market and a good price, without which the farmer could not posssibly meet his engagements. But a ready market there always is,—and most generally a good price. It is true that the operations in *Mark Lane*, will occasionally cause prices to fluctuate, and thereby sometimes affect those whose circumstances compel them to sell when the price is low. A low price however continues but a short period; and such as are able to stand it out are not in the least affected. But Scotland is nearly exempt from the influence of grain speculations; we mean as applying to farmers. Manufacturers, mechanics, artisans and tradesmen generally, often feel, and feel severely, the effects of grain speculations, that is when the crop is less than an average one. If the quantity produced one year is less than

that produce for the previous years, the price is sure to advance in a ratio proportionate to the *decrease*. On the other hand, if the quantity produced in one year exceeds the average production of the previous years, almost to a certainty the price will fall in proportion to the *increase*. This affords the farmer the very best protection against a deficient crop; and enables him, under what might be called unpropitious circumstances, to meet his obligations.

But, how, it may be asked, does things operate so advantageously to the farmer. To such an enquiry an answer is easy. The farmer depends on a *home market* for the disposal of his produce; and those whose occupations are other than agricultural, depend on his produce for subsistence. It is important to observe here the benefits resulting from the manufacturer living in the same vicinity with the farmer. The manufacturer wants bread. The farmer wants of the articles of manufacture, and so the one can supply the other, to the mutual advantage of both. Living together, the exchange can be made without being subjected to cost of transportation. But remove them apart, and transportation becomes an item of some consideration in the exchange; and this the farmer, who is removed from the manufacturer must necessarily pay, consequently his bushel of wheat is not in reality so valuable, as his is, who lives adjacent to the manufacturer. The Scotch farmer is, in a great measure, exempt from the cost of transporting the raw material, as the consumer lives at his door. The manufacturer, the mechanic, the artisan &c., are part and parcel of the same community, consuming the production of agriculture, almost on the spot where they grow. There, you look in vain for imported boots and shoes; they are to be found only in the shoemaker's shop. Do you want a coat, the tailor is at hand to make it, no such thing as sending abroad your patronage to enrich others. Unlike the people of the west, who send to the east for large quantities of ready made clothing, there every necessary article is manufactured and made at home, and such only are imported as *cannot* there be made. This establishes a mutual dependence between the producer and manufacturer. The farmer looks with moral certainty to the latter, as a sure purchaser of his surplus produce, while the latter depends on the former for the necessaries of life in exchange for his articles of manufacture.

But not only does the manufacturer supply the home demand for manufactured articles, he also exports; and receives in exchange such articles as tea, coffee, sugar, wines, silks, &c., &c., and although the farmer must necessarily purchase of these articles, he is still no loser by the transaction, inasmuch as the exported articles of manufacture furnishes employment for a number of operatives, &c., depending principally on his produce for their daily bread, and who, but for this very cause, in all probability, would never consume a pound of it.

The reason, then, of land being so valuable in Scotland, obviously is, that the country is a manufacturing, as well as an agricultural one; because the inhabitants are adequate to consume all the productions of the soil. Did the farmer depend on a foreign market, glutted with the products of other countries, land in Scotland could not possibly be of more value than the land in those countries, the products of which

find a market at the same place. Under such circumstances, all the advantage one place could have over another, would be in its proximity to the market, and cost of transportation. If the country of A could transport its products to market at half the price of the country of B, the land of the former would possess a value over that of the latter, in proportion to its saving in transportation. Hence, the price of transportation increasing, as we remove from market, the price of agricultural products decreases; and so, also, does the value of land. If this theory is correct, and we do not think that it can be easily controverted, the best and only means of enhancing the value of land is to build up a home market for the products of agriculture. If Scotland was removed to the State of Illinois, with the population of the latter, following their present callings, thousands of acres, now paying a high yearly rent, would not be worth cultivating; the low price of produce would not pay for the amount of labor and manure necessary to produce a crop. But place the population of Scotland, with their present habits and pursuits, on the State of Illinois, and the result would be different. They would carry along with them a market for the productions of the earth; consequently they would increase in price, and the land increase in value. If the west would dispense with every article of eastern manufacture, &c., and use only such as are manufactured in the west, an increase in the value of the land would follow as a natural consequence. There is not a single article of manufacture, but partakes, more or less, of agriculture, as the manufacturer must live on the productions thereof. We cannot, therefore, purchase a single article of eastern manufacture, but we aid in building up the eastern farmer, just as effectually as if we were to buy his wheat, or any other of his farm products. If, when the western farmers dress themselves in a suit of eastern manufacture, they would reflect, that in buying such articles they were buying the wheat of the eastern farmer, when, in all probability, their own was lying unsold, they would surely feel mortified at their simplicity.

Respecting manufactures, the people of the west seem to labor under a strange infatuation. Why they are not more encouraged is incomprehensible. There is no need of sending east for manufactures; encourage the manufacturer, and he will come to you. Patronise him, and he will settle in your midst; he will manufacture at your doors; and render you entirely independent of the east. Hear what Captain Marryatt says on this subject: —

"The western States can produce every thing that the heart of man can desire, and can be wholly independent of them (that is the east.) They have, in the west, every variety of coal and mineral; a rich, alluvial soil, hardly to be exhausted by bad cultivation; and wonderful facilities of transport. Independent of the staple produce of cotton, they might supply the whole world with grain; sugar they already cultivate; the olive flourishes; wine is already produced on the banks of the Ohio, and the prospect of raising silk is beyond calculation. In a few days, the *manufactures of the old world* can find their way from the mouth of the Mississippi, by its thousand tributary streams, which run like veins through every portion of the country, to the confines of Arkansas and Missouri; to the head of navigation

at Saint Peters; on again to Wisconsin, Michigan, and to the northern lakes.

"One is really lost in admiration, when one surveys this great and glorious western country, and contemplates the splendor and riches to which it must ultimately arrive."

Captain Marryatt wrote for his countrymen, but it would be well for the people of the west to remember, and improve upon what he says. He rejoices over the "great and glorious western country," only because he thinks he sees in it a market for the manufactures of his own. But, may we not hope that the west will soon show the "Old World" that she is capable of manufacturing for herself; and thereby furnish employment for American, instead of British operatives.

The advantages of manufactures are most apparent, by comparing manufacturing with non-manufacturing countries. What is it that makes Massachusetts such a rich, flourishing, prosperous State? Her soil is of a quality far inferior to that in the west, yet she is one of the wealthiest States in the Union; and will continue to be, so long as her manufactures continue to prosper. So with England — what has advanced her to the eminent position she holds in the world, but her manufactures? She has no natural advantages that are not common to other countries; and in many of these she is behind the west; yet she is one of the most powerful nations on the globe, and boasts of being, in many respects, the "envy of the world." But deprive her of her manufacturing population, and she would soon sink into insignificance. Look at those countries devoid of manufactures, rich in soil, rich in mineral; rich in all of nature's gifts, yet, withal, poor, wretched, and miserable; hardly recognized among the nations of the earth.

A clergyman in Massachusetts, speaking of the emigration to California, is reported to have advised the people of that State to stay at home and attend to their business, and in that way they would secure more of the gold than by going to the mines. This is a very seasonable advice, and contains more truth than may, on a first observation, appear. While the gold diggings or washings continue profitable, every other branch of industry will be neglected; consequently, every thing consumed in the country will have to be imported; and doubtless the manufacturers of Massachusetts will swell the lists; and there, and such other places, the gold will eventually enter. Yes! the gold of California will build up Massachusetts; it will enable her to furnish employment for an additional number of mechanics, artisans, and operatives, and thereby enhance the value of her real estate, and her agricultural products; while the rich valleys of California will remain uncultivated. And what will Massachusetts have to thank but her manufactures?

But we have said enough. We sincerely hope that the people of the west will see the importance of encouraging manufactures. They are all that is required, to establish, permanently, west of the Alleghany mountains, the great metropolis of American wealth and power, and render the west independent of foreign manufactures. Neither

England, New England, nor any other country, has greater facilities. A super-abundance of materials is scattered all over the country, ready to lay your hands upon; inviting man to apply them to useful purposes, and promising a rich reward. All that is required, therefore, is a "long pull, a strong pull, and a pull all together." A united effort to establish manufactures, and the west will be second to no part of the globe.

ART. V.—ST. CHARLES COUNTY, MISSOURI.

BY B. A. ALDERSON, OF MISSOURI.

MESSRS. EDITORS:—In these parts, we are pleased to see that you have again commenced the regular issuance of that most valuable (to the west) of all the journals now published;—many of the doubting, who had fears that it was to be numbered with the things that were—which have passed and gone forever—I am sure, will hereafter, have regular monthly greetings, mingled with much pleasure.

Feeling my inability to perform faithfully the task promised months ago, I began to think that a release was gained from that promise, but not so now; and the idea has occurred to me that a feeling of inability is often engendered, and a nonperformance of duties the result, from the fact that we do not at once take hold and manfully wrestle onward.

I have had some reflections on the subject of which I shall write, and, in connexion therewith, may transmit some relics of the past down to posterity, which, altogether, may not be wanting of interest.

In attempting to give some account of St. Charles county, and its resources, let us retire from the confines of the city, and wend our way along the hill road, which leads o'er hill and dale, through a dense forest of black-jacks, to the termination of the highlands, dividing the waters of the Mississippi from those of the Missouri river. At the end of two and a half miles, you suddenly emerge from this dark thicket, and find yourself standing upon the summit of a high eminence, and adjacent to others of a like nature, with nought to intercept the view so far as the eye can reach; east, west, and north is one vast amphitheatre, covered with green foliage and luxuriant grasses while under your feet, the soil you stand upon yields nothing—neither tree, shrub, nor herbage. These are the mamelles! projecting out boldly,

nearly midway between the two rivers. But from this eminence what presents itself to your view?—the ground floor of a great enclosure—one vast garden spot; its shores on the north washed by the great Father of Waters, and on the east, by those of his elder, but more turbulent brother, the Great Missouri. It is bedecked with the bright waters of the lakes Marias Tems Clair, and those of the Marias Croche; farm-houses, cultivated fields, and open prairie-lands, with here and there large clusters of stock of various kinds, feeding and wollowing on its luxuriant and succulent grasses. This is the Point Prairie!

Here, from this summit, you may have a rich feast for your eyes and imagination, from morning's early dawn, till evening's setting sun shall have thrown her soft, rich draperies o'er yonder lofty walls of rocks, which bound the Illinois shore, and woodland hills of St. Louis county, which surround and limit the view of this extensive and beautiful landscape.

Kind reader, be seated, and let us while away a few moments in communing on some of the principal features in the scene now before us; for when we meet again, I desire to descend from this height into those fertile fields you now behold in the distance, and search out, and hold up to public view, and to the emigrant's eye, the resources and facilities to be derived from a residence in the county of St. Charles.

Do you see that indentation in yonder cliffs of the Illinois shore? There rolls down the river by that name, bearing in its course the wealth of the lake region, and that bordering upon its own waters for many miles in extent, and thence deposits all upon the bosom of the river of rivers, to be distributed towards the four quarters of the globe.

One and a half miles below the mouth of this river, just behind that skirt of heavy timber which stands on this side the Mississippi river, is situated the town of Grafton, in Illinois, now bounding into life and action from the salutary influence consequent upon opening the canal through to Lake Michigan. This is about eleven miles north of St. Charles. Seven or eight miles still lower down the river, and which you may discern through the narrow skirt of timber bordering along the Marias Tems Clair, is the old French village of Portage de Sioux. This village derives its name from the fact that during Indian times in this country, the Sioux, and other tribes, in the fall of the year, when going to their hunting grounds westward, would land their canoes at this point, and haul them across to the Missouri river, a distance of about two miles, thereby saving a voyage of some twenty-five miles, and continue their voyage up this stream, stopping at St. Charles to lay in a stock of amunition, and on their return in the spring to barter off their cargo of skins, tallow, &c. Their canoes, mostly of light birch bark, were made fast to the tails of their ponies, and thus hauled from river to river.

About sixteen miles distant, and only obstructed from our view by the intervening forest, stands the flourishing city of Alton. It is situated immediately at the termination of those ledges of rock which you see fading away in the distance.

See yonder bluff, on the St. Louis side of the Missouri river, jutting up boldly to the water's edge, with a dark curve line encircling its base. Those are the coal banks of Chaboniev; and immediately in our rear, underlaying these broken highlands, is one continuous coal-field, continuing, perhaps, the whole length of the county; several pits having been opened and worked round about the city, promising fair profits for the labor of the miner.

Let us look back for a few moments, from those well tilled farms, and herds of stock which our eyes now behold in the plains beneath us, fifty years or less, to the time when the Spaniard held dominion, and see what a change Americans have wrought! The village of St. Charles, with the cattle belonging to its inhabitants, was enclosed by a fence, joining on to the river above and below, while the tillers of the soil raised their crops outside this fence, where no cattle could molest. As the stock increased, to afford pasturage, the area around the village was enlarged, commencing one and a half miles down the river, and crossing these highlands a few rods back of where we now stand, and extending in a westerly direction, entered the open prairie and extended some forty arpens in length, beyond which the cattle never ranged, the cultivated lands being outside this enclosure, principally on the banks of the Marias Croche, whose placid waters you there see, in the shape of a crescent. These fences were constructed of trees, poles, and rails, and built and kept in repair by those who, in common, cultivated the lands beyond them, each one making and keeping in repair a distance in proportion to the number of arpens he had in cultivation. On the principal roads leading to the village, gates were erected, and old men appointed to keep them and gather toll, which consisted of one bushel of wheat per season from each farmer; and as each cartload of corn passed, when gathering the crop, a few ears were thrown out to his children, which they gathered up and stored away, affording an ample living for his family. In those days, spring wheat only was raised, and the corn crop was housed by the fisrt of November, at which time the gates were thrown open, and so remained until the first day of March, when they were again closed. Finally, through the medium of tradition, handed down by the old French settlers, we are informed that those were good old times—no bad people—all social, and worked in common. But the Americans began to come in—would throw down the fence—leave the gates open—and now, you see, the result is that every man has to himself his own field, and lives and flourishes beside his own "vine" and fruit trees, and the French village of St. Charles has grown to be a flourishing American city.

ART. VI.—PACIFIC RAILWAY EAST OF THE MISSISSIPPI.

The following communication has been called forth, as we infer, by the invitation of the committee of publication but was not received in time to be published under their direction. We have therefore given it a place in the present number of our journal. This document comes from an important point in the valley of the Mississippi, and may be regarded as an expenent of the views entertained in that region in respect to the Pacific railway. It also contains some interesting information in regard to the progress of railway improvements east of the Mississippi.

[FOR THE WESTERN JOURNAL.]

INDIANAPOLIS, IND., 15th Sept. 1849.

I avail myself of your kind invitation, to submit, through your columns, a few facts and suggestions, relative to the Atlantic and Pacific rail road, now in contemplation, with special reference to the line best calculated to answer the anticipated purposes of that great national enterprise.

It is now universally conceded that such a work will be indispensable to the east, middle and western sections of the Union, and not a doubt can be entertained but that, sooner or later, the work will be accomplished, however gigantic it may appear.

But, while all concur in the importance of the work, all do not agree as to the line or route of such a road; some contend for the southern route, through Georgia, Alabama, Tennessee, and Arkansas; while Mr. Whitney and his friends are pressing the claims of the northern route, commencing at the northern lakes. These routes, of course, have their advocates, but it seems to me that a single glance at the map, with a very slight knowledge of the character of the country, should satisfy any one that both the routes referred to are out of the line of such a work, and that the true line is between the two, or a central route. This route I propose very briefly to lay down for the eye of your readers, in tracing the map. The great object of such a line of rail-way, is, to connect, by the shortest practicable route, at the least possible expense, the extremes of the Union, or, in other words, our Atlantic sea-board with the Pacific, provided such connection shall pass through the largest portion of population, and accommodate the greatest number in its business facilities. Such a route, I maintain, is presented in a pre-eminent degree, by the middle, or central line. That line must make St. Louis the starting point, *west*, however it may branch

through the valley of the Mississippi, in its eastern direction. Upon this point, I think the whole of the centre will concur. I do not, therefore, stop to examine that question, or to show upon what my opinion is founded. I proceed to present the line from St. Louis east; to connect that city, by rail-way, with the cities of the Atlantic, which I maintain is to be the great line, whatever branches it may and will have; and as I like plain writing, so that I may be distinctly understood, I will name the points and lines, with their connections, for it is evident that any lines which have several points of termination on the Atlantic, as at Boston, New York, Philadelphia, and Baltimore, the direct central line should pass from Saint Louis east by Vandalia, Terre Haute, Indianapolis, Muncie, Winchester, and Sidney, to Bellefontaine, in Ohio, from which point the Philadelphia line would pass through Marion, Mansfield, Wooster, Massillon, Canton, and Beaver, to Pittsburgh, and from thence to Philadelphia. This whole line, from the western line of Indiana to Philadelphia, is chartered, and in a rapid progress of construction. At Bellefontaine, Ohio, the line from Sandusky city, already constructed, will intersect the line near Mansfield, Ohio; the Cleveland line will intersect it, and, at the Indiana State line, the Wheeling line through Columbus, Urbana, Piqua, and Greenfield, will intersect it. These lines will concentrate at the State line of Indiana, the branch lines from Boston, New York, Philadelphia, and Baltimore, forming the junction, and running, by a single road, through Indiana and Illinois, by the direct route. This route will be found to be one hundred miles nearer than the Chicago route, and about the same nearer than the Cincinnati route, by Vincennes. It is greatly the cheapest of construction, as it passes upon the dividing line between the waters of the lake and the Ohio river. It will be the great business route, as it will have no competition from natural avenues of trade; and from one end to the other, it will pass through one of the best countries in the world.

I have said enough to draw the attention of your readers to the route. It is, through Pennsylvania, Ohio, and Indiana, in a rapid state of construction, in a continuous line, and it only remains for Illinois to grant the right of way, to secure the construction through that State to St. Louis, when it must become the great thoroughfare of business and travel between the cities named and those intermediate, and the intersection of the Atlantic and Pacific rail road at St. Louis.

I may pursue the subject hereafter, if desirable. I trust, however, I have said enough to call public attention to the great central route.

S.

ART. VII.—THE OSAGE VALLEY.

IMPROVEMENT OF THE OSAGE RIVER.

There is not, in our opinion, a more interesting district of country west of the Mississippi than that drained by the Osage river: but owing to the operation of a variety of causes the settlement of this valley has not kept pace with other parts of the west that are far less favored by nature. The uncertainty of the navigation of the Osage has prevented the staple growing emigrants from settling in its valley, and consequently it has been left open to the smaller farmers who not having much produce to ship have apparently taken but little interest in the improvement of the river. Recently however the people of this region have become awakened to the importance of improving the means of sending their surplus produce to market, and acting under a charter granted in February 1847 to an association of counties, the work of improving the navigation of the Osage was commenced in the summer of 1848, and during that season we learn that the sum of about $18,570 was expended and we have been informed by one of the commissioners that he is confident, from personal observation, that the work can be completed with an expenditure of $25,000 from the mouth of the river to Pappinville the county seat of Bates county, a distance of about 300 miles.* In a communication from the gentlemen above alluded to he says "there is but little work required except in the shoals, and in cutting the hanging timber from the shore. The mode of improving is by wing dams, composed of brush and rock: and dredging or scraping out the gravel on the shoals and removing the logs from the channel. The Osage is a beautiful stream of clear water with rock or gravel bottom, is quite deep in the pools or spaces between the shoals which are from one to three miles apart: the river is about 200 yards wide. The work done last year has been of great advantage to the navigation and I have no doubt that the river can be made navigable for small boats two thirds of the year with comparatively small expense, to the town of Warsaw. The dams constructed last year have every appearance of remaining permanent. They have had the effect of deepening the channel wherever they have been constructed, and owing to the gentle current of the river these channels are likely to remain permanent, where they have been formed by the improvement. The Osage drains a scope of country comprising some eighteen or twenty counties of fertile land, and is rapidly populating with wealthy farmers. The valley of the Osage and its tribu-

*We learn that owing to the continued high water in the river during the present year the work has been suspended.

taries cannot be excelled in point of soil, spring water, and timber, and is destined ere long to become the most popular portion of the state. It abounds with iron, stone coal, and lead. With in a few miles of this place (Tuscumbia,) an individual has recently sunk a shaft about ten feet in solid iron ore which he struck near the surface. Many other discoveries of iron have been made in this neighborhood, in locations abounding with timber."

Now all this is true, and it is natural that our correspondent should conclude that the valley of the Osage will "ere long become the most popular portion of the state" but there are other causes besides the want of navigation that must prevent the valley of the Osage, in common with other central portions of the west, from improving, or becoming popular in the estimation of emigrants.

The agricultural emigrants from all the Atlantic states are attracted by staple producing districts. Those south of Pennsylvania incline south for the purpose of growing cotton, while those north of Mason & Dixon's line incline northward with a view to wheat growing; and this inclination of the American agriculturists to emigrate to staple growing districts is strengthened by the prejudices which are continually kept alive between the north and the south, by the fanatics of the one, and the demagogues of the other. Hence as our population progresses westward, the current of emigration diverges farther and farther from the central region, leaving this in many respects the most favored portion of the continent, to the occupation of the early settlers, a large portion of whom came in pursuit of game and natural pasturage, and are consequently slow in adopting the improvements of the age. This tendency to diverge from the central region may be observed within a short distance below the falls of the Ohio, and as we proceed thence westward, this neglected region gradually widens, embracing a considerable portion of western Kentucky, and the southern part of Illinois, and crossing the Mississippi, it embraces the larger portions of Missouri and Arkansas.

An intelligent foreigner with a map of the United States before him, and acquainted with the geology as well as the geography of this region, would unhesitatingly pronounce it the most desirable part of the continent. Such an individual could scarcely comprehend why it is that, while other portions of this great valley, both north and south have been, and are still filling up so rapidly, that yet here in the centre the population is nearly stationary. Almost every intelligent individual acquainted with the map of the United States, regards the mouth of the Ohio as the best location in the interior of the continent for a great commercial emporium, and it is generally believed that nothing but its being subject to occasional inundation has prevented the building of a great city at that point; but in our opinion, this has been prevented by other causes more potent than the overflowing of the waters; and we are persuaded that if nature had formed a bluff at the mouth of the Ohio, as high and as beautiful as that at Memphis, that Cairo would not have been up to the present day as large a town as Natchez. Yet we do not deny that the time may come when Cairo may be a large city. We have been lead into a digression that we did

not foresee when we commenced this article: and we beg pardon of our Osage friends for rambling so far from their beautiful valley. In conclusion, we feel fully warranted in expressing the opinion that, in view of the improvement of the navigation of the Osage river, there is no part of the State that offers more inducements to the emigrant than that watered by this beautiful stream and its tributaries.

ART. VIII.—THE VINEYARDS OF HERMANN, MO.

The first printed notice we ever met with in respect to the cultivation of grapes at Hermann, appeared in the Annual Report of the St. Louis Horticultural Society, in January, of the present year. So quietly has this new settlement proceeded with its enterprise, and so little interest do the people of Missouri take in matters connected with the development of the resources of the State, that we question if one in a hundred of our own citizens is at this day, aware of the fact, that wine has ever been produced at Hermann, although some of the vineyards are in full view from the steamboats, which daily pass the romantic bluffs on which the vines are growing.

Gasconade, the county in which Hermann is located, is considered among the poorest counties in the State, and consequently, is but sparsely settled; but we confidently predict, that the statistical returns for the year 1860 will show that the wine crop of a few townships in this poor county, produced by a comparatively small number of German families, will be of greater value, in money, than the entire hemp crop of the State. Indeed, we shall not be surprised, if the vintage of Hermann, in 1855, exceeds in value all the hemp grown in Missouri, in the same year.

The facts contained in the following communication from M. Poeschel, in answer to our inquiries in respect to grape-growing at Hermann, may be relied on as strictly true; and it is wonderful that so many of our citizens subject themselves to the privations and hardships incident to a trip to California, in search of gold, when it can be so easily obtained by dressing the vine, and pressing the delicious fluid from rich clusters of grapes, amidst the pleasant hills and vallies of southern Missouri. No employment can be more pleasing to one of refined taste, than the culture of the vine; and we verily believe that no rural pursuit in this, or any other country, will pay one-half the profit that can be realized by grape-growing in Missouri for the next twenty years.

We indulge in no careless or enthusiastic expressions. We have well considered the import of all we have said on this subject, and now beg to refer our readers to the facts contained in Mr. Poeschel's communication:

Hermann, Mo. May 31st, 1849.

MESSRS. TARVER & RISK,
ST. LOUIS, MO.

GENTLEMEN,—A few weeks ago I received your favor of 20th April, and I will cheerfully give you now the desired information regarding the culture of the grape-vine in this part of the country, as far as this is in my power.

The first attempts at vineyards were made here about eight years ago, by people from the Rhine, but they adhering to their old prejudices, did not succeed well. Other settlers finding out where the error lay, tried it on another scale, and succeeded much better, treating their vines more after the Cincinnati manner, and their success encouraged many. In 1845 about 50,000 vines were planted; 1846, more than 150,000; in 1847, more than 300,000; in 1848, more than 500,000, and now there are at least 700,000 vines in full thrift.

Three years ago I commenced my little plantation, planting about 1000 rootlings, (yearlings,) on 7-8 of an acre, raised them all on Espaliers, and they grew wonderfully, 6 × 8 feet apart, but the soil was well prepared for them, as I had dug furrows 2 feet deep and 2 feet wide, throwing the fertile soil underneath, and covering the surface all over with the yellow clay, which admits no weeds. In 1847, I earned from my little vineyard nearly $700 in grapes, and $400 from wood. In 1848 I made wine to the amount of 1600 dollars, 400 dollars of wood, (slips and yearlings.) I have planted my vines 6 × 8, but now I shall plant them 8 × 8, finding them too much crowded; the vine will bear more freely and have more perfect grapes if air is admitted. The southern exposure, and south-east are here preferred to all others.

The mode of pressing is very simple. I wash my grapes, let them stand after washed *before* pressed 24 hours, press them in my wooden press; when pressed let the juice run into suitable casks, let it then stand quietly uutil the fermentation is over, a cool place for that of course is the best,—cover the bung-hole with a wet rag,—after the fermentation is over, (9 or 10 days,) fill it over softly in well prepared casks, let it stand slightly closed (until a sort of second fermentation is over) for about three days, and then shut it tight till February or March, when the young wine is drinkable. Have you love for your wine, let it lay undisturbed till April, then bottle it.

I am from the northern part of Germany, therefore had no knowledge of the culture of the grape before I came to Hermann; the settlers of this section of the country, are from all parts of Germany. Foreign wines will not do here, they freeze in winter, and dry up in summer. The olny grape that will make good wine here (as far as

our experience tells us,) is the Catawba. Wine from this variety surpasses the best Hock in flavor and strength, and has no acid. The Catawba wine weighs 10 ° whereas the best Hock ever imported did not come up to 8 1-2 °. Our wine was readily sold at $2,00 per gallon in St. Louis and elsewhere this spring, and I think the world will be our market after a while, though not at the same prices; but we will strive to diminish importation. The grape has never failed here, as long as this settlement exists. I cut my vines in the month of November, and plant early in spring. The rot among the grapes, which you allude to, is very trifling and imperceptible among the abundance of grapes which remain. Our prospects for this year are greater than ever they have been before.

Cheerfully would I and my neighbors subscribe for your periodical, but we don't understand the English language.

I am most respectfully your obedient servant,

MICHAEL POESCHEL.

COMMERCIAL STATISTICS.

It will be perceived that we have selected our commercial statistics for the present number with reference to the subject of a railway to the Pacific. It is natural, at a time when so much is said of our commerce with the east, that men should inquire into its details; and hence, we have undertaken the labor of separating that part of our commerce which passes the Cape of Good Hope and Cape Horn, from that which is carried on with other countries. The following tables have been carefully made up from the report of the Secretary of the Treasury, made to the last session of Congress.

It will be seen that our imports from all countries beyond the capes, amounted, for the year ending 30th June, 1848, to $13,499,455, and that our exports, in the same period, amounted to only $5,133,456, including bullion and specie, leaving a balance against us in the barter and specie account, of $7,628,020. This balance was adjusted, of course, with foreign bills, principally on Great Britain. Now, if by shortening the route, and cheapening transportation to the east, we can discharge these annual balances by an exchange of our own products, what effect will this produce upon the commerce of Great Britain, and especially upon the commerce between that nation and the United States? This is an important inquiry; and we should be pleased if some of our political economists would favor us with an answer. For ourselves, we are not prepared to hazard an opinion; but it would seem that if our exports to China and other eastern countries should balance our imports, that this would have a tendency to diminish our exports to Great Britain.

Tables showing the nature and extent of the trade between the United States and China, and between the United States and other countries beyond the Cape of Good Hope, made up from the report of the Secretary of the Treasury.

Statement of Domestic Exports from the United States to China, for the year ending 30th June, 1848:

	VALUE.
Apples,	$100
Beef in barrels,	8,377
Beer, porter, and cider,	130
Books and maps,	5,348
Brushes,	234
Biscuit and shop bread,	12,387
Butter and cheese,	4,035
Candles, spermaceti,	8,290
Clothing, wearing apparel,	1,452
Copper and brass manufactured,	306
Cotton,	850
Cotton, piecegood, printed, and colored,	423
White,	1,639,551
Twist, yarn, and other thread,	45,480
All others,	6,505
Earthen and stone ware,	300
Fish, pickled,	186
Flax, manufacture of	24
Flour,	31,640
Furniture, household,	1,367
Ginsing,	162,647
Glass,	1,127
Ice,	2,541
Indian corn meal,	40
Iron castings,	368
Iron and steel manufactured,	7,049
Lead,	55,997
Leather, boots, and shoes,	1,444
Lumber,	1,000
Masts and spars,	3,330
Medicinal drugs,	1,090
Molasses,	68
Nails,	110
Oil, spermaceti,	194
Oil, linseed, and spirits of turpentine,	711
Paints and varnish,	1,204
Paper and stationery,	831
Pork, hams, and bacon,	11,507
Printing presses and type,	396
Saddlery,	157
Skins and furs,	5,300
Spirits from grain,	3,829
" " molasses,	2,590

Sugar, refined,	1,161
Tallow, candles, and soap,	1,336
Tar, pitch, rosin, and turpentine,	642
Tin, manufactured,	726
Tobacco, manufactured,	2,921
Vinegar,	35
Wood, boards, plank, and scantling,	6,145
Wood, manufactures of	6,191
All other articles not enumerated,	13,954
Total,	$2,063,625

STATEMENT OF EXPORTS *of Merchandize, of foreign production, from the United States to China, for the year ending 30th June*, 1848.

	Value.
Gold, Specie	$6,222
Silver "	65,791
Tea,	346
Worsted Stuff Goods,	450
Silk Piece Goods,	4,500
Camlets of Goats and Mohair,	1,444
Socket Chisels,	75
Articles not specified,	1,265
Glass, Silvered and in frames,	1,001
Wines in casks — Madeira	1,041
" " Sherry and Saint Lucas,	1,078
" " White,	181
" port in bottles,	40
" claret in bottles,	250
Brandy,	2,116
Oil, Linseed,	873
Cocoa,	381
Raisins,	4,177
Opium,	500
Cigars,	1,123
Cordage, untarred,	6,072
Merchandize not enumerated,	27,015
Total,	$126,388

Recapitulation of Exports to China.

Total Exports, of Domestic growth and manufacture,	$2,063,625
Total of Exports of Foreign Merchandize,	126,388
	$2,190,013

STATEMENT OF IMPORTS *into the United States from China for the year ending the 30th June*, 1848.

	VALUE.
Books,	$115
Buttons,	3,065
Cabinet and household furniture,	888
Camphor, crude,	11,920
Cassia,	79,585
China, porcelain, earthen and stone ware,	9,685
Cigars,	2,183
Clothing, articles of ware,	10,377
Copper, manufactures of,	17
Copper plate printing and drawing,	273
Cordials,	2
Cotton printed, stained, &c.,	5,813
Domestic produce brought back,	8,060
Dye wood in stick,	1,236
Fur,	12
Ginger root,	11,687
Gold and silver manufactures not specified,	38
Grass cloth,	4,221
Hides, raw,	1,316
Indigo,	9,717
Iron, Manufactures of,	78
Japanned ware,	22,038
Jute sisal grass, coir, &c.,	36,590
Matting of flaggs,	62,141
Needles,	339
Nutmegs,	49
Painting and statuary,	22
Paper, writing,	1,413
Paper, not specified,	1,204
Paper hangings,	1,596
Personal effects of persons dying abroad,	575
Silk, piece goods,	970,971
Silk, sewing,	1,602
Silk, tamboured or embroidered,	312,953
Silk manufactures not specified,	7,435
Silk Floss and raw,	93,287
Silk Umbrellas,	31
Silver plated metal,	328
Specimens of Natural History,	146
Sugar, brown,	20,920
Tea, lbs. 23,597,702,	6,217 111
Tin in pigs and bars,	58,605

Ware, painted or gilt,	518
Wine, red,	59
Wine, port,	37
Wood, cedar, mahogany, rose, scented — manufactures of,	138
Other manufactures of wood,	130
Worsted stuff goods,	1,882
Value of merchandize not enumerated in the foregoing statement,	108,610
Total,	$8,083,496

Excess of imports over the amount of exports, - - $5,893,483

Of the above amount of imports, $1,857,582 paid an advalorem duty, the balance was free of duty.

A Statement, showing the value of Exports of the Produce and Manufactures of the United States to all countries beyond the Cape of Good Hope and Cape Horn, for the year ending the 30th June, 1848.

China,	$2,063,625
Dutch East Indies,	133,905
Mannilla and Philippine islands,	36,945
British East Indies,	510,284
Asia, generally,	266,452
South sea and Pacific,	305,118
Chili,	1,703,625
Peru,	123,502
	$5,133,456

Amount of Foreign Merchandize Exported from the United States to all countries beyond the Cape of Good Hope and Cape Horn, for the year ending the 30th June, 1848.

China,	$126,388
Dutch East Indies,	107,954
British East Indies,	156,217
Mannilla and Philippine islands,	13,549
Asia, generally,	28,279
South sea and Pacific ocean,	67,483
Chili,	220,886
Peru,	16,731
	$737,979
Amount of Domestic Exports,	$5,133,456
Total of Exports beyond Cape Horn,	$5,871,435

Value of Merchandize imported from all countries, from beyond the Cape of Good Hope and Cape Horn, for the year ending the 30th June, 1848.

China,	$8,083,372
Dutch East Indies,	249,346
British East Indies,	2,069,632
Mannilla and Philippine islands,	1,197,027
Asia, generally,	255,400
South sea and Pacific ocean,	9,960
Sandwich islands,	6,508
Chili,	1,31 0,451
Peru,	317,759
Total of imports from all countries beyond the capes,	$13,499.455
Excess of imports over the exports,	$7,628,020

STATISTICAL REVIEW OF THE AMERICAN WHALE FISHERY.

We extract from the *Merchants' Magazine* for February, 1849, the following statistical review of the American whale fishery. The article purports to have been written by Henry P. Haven, of Connecticut.

We publish it in connexion with the statistics of our eastern commerce, for the purpose of presenting, as far as practicable, the whole of our trade with that part of the globe, at one view.

The whaling fleet of the United States consisted, on the 1st of January, 1849, of 580 ships and barks, 20 brigs, and 13 schooners, with a total tonnage of 195,598 tons, owned in the following places:

	Ships & barks.	Brigs.	Schooners.	Whole No. of vessels.	Tons.
New Bedford	246	2	1	249	80,660
Nantucket	67	1	1	69	23,477
New London	48	1	4	53	17,880
Fairhaven	49	-	-	49	15,805
Sag Harbor	41	-	-	41	14,649
Warren, R.	20	-	-	20	6,558
Stonington	21	-	-	21	6,414
Mystic	15	-	1	16	4,897
Cold Spring	8	-	-	8	3,315
Greenport	10	-	-	10	3,059
Westport	10	5	-	15	2,804
Edgarton	6	2	-	8	2,408
Newport	6	-	-	6	1,984
Mattapoisett	6	4	-	10	1,880
Fall River	5	-	-	5	1,615
Providence	4	-	-	4	1,459
Provincetown	1	3	6	10	1,200
Falmouth	3	-	-	3	1,106

Holmes' Hole . . .	3	-	-	3	949
Lynn	2	-	-	2	720
Bridgeport	2	-	-	2	709
Salem	1	-	-	1	398
Wareham	1	-	-	1	374
Sippican	1	-	-	1	256
New Suffolk . . .	1	-	-	1	227
Bristol	1	-	-	1	222
Plymouth	1	-	-	1	175
Somerset	1	-	-	1	137
Dartmouth	-	1	-	1	111
Yarmouth	-	1	-	1	90
Total	580	20	13	613	195,598

Average tonnage . . . . . tons 319

The ship *Hope*, of New Bedford, sailed in 1843, last reported ashore at New Zealand, is not included in this list.

The largest vessel in this fleet is the ship *South America*, of Providence, 616 tons; and the smallest, the schooner *Atlas*, of New London, 81 tons.

The time of sailing of these vessels is as follows:—

	Ships & Barks.	Brigs.	Schooners.	Total.
Sailed in 1844	11	...	.	11
" 1845	81	...	1	82
" 1846	121	1	1	123
" 1847	165	2	3	170
" 1848	159	10	3	172
In port	43	7	5	55
Total.	580	20	13	613

The vessel now at sea out the greatest length of time is the ship Barclay, of New Bedford, sailed 20th July, 1844.

The ship Alexander, of Sag Harbor, arrived 19th July, 1848, about four years, ten months and four days, perhaps the longest voyage ever made by an American ship.

Of the whole number of vessels at sea (558,) about one-half are engaged chiefly in the sperm whale fishery, the other half making the right whale the main object of their pursuit; the vessels of larger tonnage being generally right whalers, and the smaller, including the brigs and schooners, in the sperm fishery.

About 35 brigs, schooners, and small barks are employed in the sperm whale fishery in the North and South Atlantic; about 85 ships and barks in the South Atlantic and Indian Ocean for sperm and right whales; and most of the remainder in the Pacific—those for right whales cruising on the coasts of Asia and America from 1st March to 1st October each year in latitude 35° to 60° N.; the sperm whalers cruising on the line, and coasts of Peru, Japan, and New Zealand during the whole year.

The following table shows the number of vessels employed in the American whale fishery at the different dates during the last twenty years:—

	Ships & Barks.	Brigs.	Schooners.	Total.
January 1, 1829, ...	184	17	2	203
" 1834, ...	414	7	...	.....
" 1843, ...	589	55	14	658
" 1846, ...	680	34	22	736
" 1849, ...	680	20	13	613

It will be seen from this table, that while the increase has been very great since 1st January, 1829, yet the last three years have shown a *decrease* of 123 vessels, or 17 per cent, being a greater reduction than the increase of the three previous years. From the tables at the close of this article, it will be seen that the ships arriving with whale oil in the years 1843, 1844, and 1845 were absent but little more than two years, and averaged 2,058 barrels whale oil, with an average price of 34 1-2 cents; while the right whale ships arriving in 1846, 1847, and 1848 were absent an average of thirty-one months, and obtained only 2,066 barrels of whale oil, with an average price of 33 cents—an addition of one-fourth to the time, with no increase of quantity and with lower prices.

The laws of *profit* and *loss*, which invariably govern all trade, have caused this great reduction in the whaling fleet; and unless the price of whale oil should materially advance, or new and undisturbed *grounds* (as the waters frequented by whales are technically called) be found, which it seems can hardly be hoped for, all oceans, seas, and bays having been visited, the number of vessels in this branch of the whaling business will probably continue to decrease. Those well qualified by experience and observation to judge, believe that all the vessels employed in the right whale fishery the past three years have not, in the aggregate, paid to their owners 6 per cent interest, without regard to profit, which, from the great length of time, hazard, and risk, ought certainly to be looked for.

The diminution in the whaling fleet here spoken of has fallen on those vessels engaged in the capture of the right whale, the prices obtained for sperm oil affording fairer remuneration for the additional time now required for a voyage. The right whale ships formerly procured their cargoes entirely in the South Atlantic Ocean, on the coast of Brazil, where the first vessels were sent about 1774, and were absent from nine to twelve months. The whole amount of whale oil then taken was very small. In the year 1826, the whole number of vessels sailed from the United States for this fishery was 23, viz:—New Bedford, 13 ships; Sag Harbor, 6; New London, 2; Vineyard, 1; New York, 1; and the whole import of whale oil in 1828, twenty years since, was but 46,065 barrels, whalebone 417,966 pounds—whale oil being worth about 26 cents, and bone 37 1-2 cents.

About the years 1829 and 1830 the right whalers began to extend their cruises eastward, and found abundance of whales in the vicinity of the Island of Tristan d'Acunha. Having never been disturbed, the whales here were tame and easily taken; and many ships returned from this ground in 1831 and 1832, absent from seven to nine months, with full fares, and the old cruises on the Brazil banks were abandoned. As the whales grew shy and were killed off in the South Atlan-

tic, the ships worked east of the Cape of Good Hope, in the Indian Ocean, off the South Coast of New Holland, and finally at New Zealand, around which last island was the favorite cruising ground for right whalers from 1835 to 1840. Here, too, the untiring energy of the whalemen frightened and dispersed the fish which his skilful hands failed to capture, and new and undisturbed fields were to be sought out. About this time right whales of a large size were found in the North Pacific Ocean, and in the year 1839 the ships Elbe and Beaver, of Poughkeepsie and Hudson, took 2,800 barrels of whale oil off the north-west coast of America. Gradually, as the ships resorted to this ground, they cruised west towards the coast of Kamtschatka, and found whales very abundant in the seas on the coast of Asia.

The following table shows the amount of whale oil taken in north latitude in the Pacific Ocean:

Years.	Ships.	Av. bbls.	Bbls.	Years.	Ships.	Av. bbls.	Bbls.
1839, ...	2	1,400	2,800	1844, ...	170	1,528	259,470
1840, ...	3	587	1,760	1845, ...	263	953	250,600
1841, ...	20	1,412	28,200	1846, ...	292	869	253,800
1842, ...	29	1,627	47,200	1847, ...	177	1,055	186,660
1843, ...	108	1,349	146,800	1848, ...	150	(Estimated.)	

Reports at this date (January 10) have been received from only 8 ships which had left the coast in 1848, and they had only taken an average of 704 barrels.

In the year 1846, an adventure was started from New London for the capture of the right whale, in Davis' Straits, where the English have whaled for two hundred years, but which had heretofore remained undisturbed by Yankee skill and daring since the revolution; and it was argued, that as the Americans had driven the English from the South Sea fishery, they might successfully compete with them among the icebergs of the north.

The first fitting and preparation of a vessel for the ice whaling, is attended with much expense not required for any other voyage. The bottom of the ship must be double covered with oak plank, and her bows very strongly fortified, without and within, to enable her to force her way through the ice and resist its pressure. The ship McLellan was purchased, fitted, and sailed for Davis' Straits April 8th, 1846; since which time she has made three voyages, averaging six months and twenty days, with an average cargo of six hundred and twelve barrels whale oil. The success of this ship has not been sufficient, as yet, to warrant the sending of any additional vessels to the ice; but the McLellan is fitting for another voyage thither.

The inhabitants of the island of Nantucket were the first persons to engage extensively in the whale fishery, and as early as the year 1690, they made whaling a profitable business, discovering the whale from a look-out on shore, capturing him in boats, returning to the shore with the carcass, to extract the oil from the blubber. As the whales grew scarce around the island, they pushed off into the ocean in small vessels, and in the year 1748 they had 60 sail, from 50 to 75 tons, and caught 11,250 barrels of oil. The first sperm whale caught at Nantucket, and probably by Americans, was taken by the schooner Hussey about the year 1712.

The ship Beaver, of 240 tons, sailed from Nantucket in the year

1791 for the coast of Peru, and was the first American whaling vessel which doubled Cape Horn. She cost $10,200, fitted for sea; was absent 17 months, and brought home 1,000 barrels sperm oil, and 250 barrels whale oil.

IMPORTED AT NANTUCKET IN

Years.	Sperm Oil. *Bbls.*	Whale Oil. *Bbls.*	Years.	Sperm Oil. *Bbls.*	Whale Oil. *Bbls.*
1808 -	7,707	10,503	1828 -	43,174	1,033
1818 -	14,864	13,426	1848 -	22,362	7,409

Although the enterprising inhabitants of Nantucket were the first to engage extensively in the whale fishery, yet they have not greatly increased their number of vessels in thirty years; and while New Bedford and other places have added a large number of ships, the good people of the island seem to have been satisfied to hold on the even tenor of their way.

	Ships & Barks.	Brigs.	Schooners.
Nantucket owned, January 1, 1819, - - -	57	1	.
" " 1829, - - - -	60	1	.
" " 1849, - - -	67	1	1

Showing an increase in twenty years, of only seven ships and one schooner.

New Bedford, which stood but little ahead of Nantucket twenty years ago, has made very large additions, and now owns nearly half the whaling tonnage of the United States.

	Ships & Barks.	Brigs.	Schooners.
New Bedford owned, January 1, 1829, - -	67	8	1
" " " 1849, - -	246	2	1

The following table shows the import of sperm oil into the United States, with the average price, for the last thirty-four years, since 1815:—

		Bbls.			Bbls.
1815 - - -	$1 40	2,186	1832 - - -	$0 85	71,435
1816 - - -	1 12	7,343	1833 - - -	0 85	90,000
1817 - - -	0 72	31,603	1834 - - -	0 72	121,700
1818 - - -	0 90	17,102	1835 - - -	0 84	172,682
1819 - - -	0 83	22,716	1836 - - -	0 89	128,685
1820 - - -	0 92	32,127	1837 - - -	0 82	181,724
1821 - - -	0 68	43,365	1838 - - -	0 86	125,977
1822 - - -	0 65	42,839	1839 - - -	1 05	142,483
1823 - - -	0 42	86,725	1840 - - -	1 03	158,431
1824 - - -	0 45	92,475	1841 - - -	0 94	157,413
1825 - - -	0 71	60,052	1842 - - -	0 73	165,637
1826 - - -	0 75	33,000	1843 - - -	0 63	166,985
1827 - - -	0 73	92,865	1844 - - -	0 90	139,481
1828 - - -	0 62	73,000	1845 - - -	0 88	157,603
1829 - - -	0 61	80,000	1846 - - -	0 88	95,219
1830 - - -	0 66	106,291	1847 - - -	1 01	120,753
1831 - - -	0 71	106,436	1848 - - -	1 00	107,876

Largest import in twenty years in 1837, 181,724 barrels; highest price in 1839, $1 05.

A table showing the import of whale oil since 1828, and the average price since 1840:—

		Bbls.			Bbls.
1828	——	46,065	1839	——	227,816
1829	——	64,039	1840	$0 30½	208,688
1830	——	86,294	1841	0 31½	205,019
1831	——	113,948	1842	0 33¾	161,041
1832	——	170,244	1843	0 34½	206,727
1833	——	159,166	1844	0 36½	261,245
1834	——	122,292	1845	0 32¾	272,186
1835	——	125,100	1846	0 33	207,481
1836	$0 36	131,157	1847	0 36	313,150
1837	0 33	219,138	1836	0 33	280,656
1838	0 32	225,000			

Largest import in 1847.

IMPORT OF WHALEBONE, SINCE 1844.

1844	lbs. 2,532,000	1847	lbs. 3,311,000
1845	3,167,000	1848	2,023,000
1846	2,276,000		

It is believed that no accurate record was kept of the import of whalebone for many years previous to 1844, but it is safe to estimate that a right whale will yield at least 800 pounds of bone to 100 barrels of oil. The price of this article has fluctuated from 9 cents in 1821 and 1822, to 55 and 60 cents in 1844.

The following statistical tables, showing the average time and success of the whaling vessels for the past seven years, are arranged from the New Bedford *Shipping List:*

SPERM WHALERS.

SHIPS AND BARKS FROM THE PACIFIC AND INDIAN OCEANS.

Years.	Ships arrived.	Av. time absent. *Months.*	*Days.*	Sperm Oil. *Bbls.*	Whale Oil. *Bbls.*
1842	55	41	8	1,973	135
1843	70	41	13	1,641	124
1844	69	43	...	1,419	293
1845	91	43	21	1,291	387
1846	42	41	6	1,350	280
1847	52	45	12	1,505	219
1848	52	41	19	1,202	192

It will be seen from this table that while the time of the ships arriving the past year was about the same as in 1843, five years since, yet the quantity of oil was diminished nearly one-fourth.

ATLANTIC SPERM FISHERY.

IN SMALL BARKS, BRIGS, AND SCHOONERS.

Years.	Vessels arrived.	Av. time absent. *Months.*	*Days.*	Sperm Oil. *Bbls.*	Whale Oil. *Bbls.*
1842	56	13	28	280	12
1843	55	14	20	288	25
1844	42	12	—	248	38
1845	43	13	7	238	76
1846	48	14	7	259	14
1847	34	15	9	228	42
1848	31	16	21	303	18

The vessels employed in this fishery have diminished more than one-half in the past seven years.

RIGHT WHALERS.

SHIPS AND BARKS WHICH CRUISE MOST OF THE TIME FOR RIGHT WHALE OIL, AND DO NOT RETURN THE NEXT YEAR AFTER THEY SAIL.

Years.	Ships arrived.	Av. time absent. *Months.*	*Days.*	Sperm oil. *Bbls.*	Whale oil. *Bbls.*
1842	74	24	15	1,722	422
1843	90	25	10	1,937	422
1844	112	25	9	2,059	248
1855	101	24	—	2,180	196
1846	04	30	2	2,034	225
1847	150	31	7	1,978	195
1848	122	33	2	2,187	222

STOCKS OF WHALE AND SPERM OIL ON HAND.

	Sperm oil. *Bbls.*	Whale oil. *Bbls.*	Whalebone. *Lbs.*
January 1, 1848	5,690	29,170	921,500
" 1849	9,590	20,600	994,600

JOURNAL OF DISCOVERIES AND IMPROVEMENTS.

IMPORTANT TO GAS CONSUMERS.

[*From the Edinburgh Witness.*

IMPORTANT DISCOVERY—HYDRO-CARBON GAS.—The discovery of this new mode of preparing gas is now attracting very general attention. It is prepared, by a very simple process, from rosin, or tar, and water; and is said to possess a vast superiority over coal gas in purity, brilliancy, and economy, whilst it can be prepared at little more than one-fifth the cost. Mr. White, the patentee, and his friends, have, we learn, been for some time engaged in simplifying and improving the apparatus for generating the gas, and have at present a beautiful model in daily operation in the establishment of Messrs. Hall & Wilson, Manchester, which, with only four retorts, each three feet long, and occupying a space of six feet by four, is capable of supplying about a thousand lights, while no purification is required, the gas passing at once pure from the retorts to the gasometer. This is certainly a remarkable contrast to the means requisite for the preparation of coal-gas. It is said, also, to be entirely free from the sulphurous vapors emitted by coal-gas, so injurious to everything bearing a fine polish; whilst the expense is calculated not to exceed from 1s. to 1s. 6d. per thousand cubic feet. Amongst other experiments tried at Manchester to test its purity, ground glass, which was said to be immediately stained on touching the common coal-gas, used in the town, came out of Mr. White's as pure and untarnished as ever; and a silver-plated jug became at once bronzed on being brought into contact with the town's gas; whereas, placed in Mr. White's, it was almost as bright as before. In reference to its properties, a letter was read at a recent meeting of gas-consumers, in London, from a gentleman in Nottingham, who lately had an apparatus fitted up in his premises for generating it; and after two months' experience, speaks of it as follows:

"I find the light still clear, brilliant, and free from any unpleasant smell, or sulphurous vapor. My men, and the work-people of the parties I have been supplying with your gas, experience no disagreeable sensation, headache, smarting of the eyes, &c., which is a great relief, after the coal gas. It is very cheap. I do not consider the expense of making it more than 1s. 3d., or 1s. 4d. per thousand cubic feet, (the cost of the coal-gas to the community in Edinburgh, is 6s. 6d. per thousand feet,) as the rosin, after making the first time, condenses in the cooling-box. I am able to use the contents of the box again, by adding three pounds of fresh rosin to two gallons of the condensed material, and still keep up the quality of the gas. I have made, on an average, one thousand five hundred feet per night—about seventy-two thousand cubic feet of gas since the apparatus was first put up."

At the same meeting, another gentleman pointed out the mode by which parishes, wards, or even separate streets, or single establishments, might be advantageously and profitably lighted by small companies or individuals; and explained how hydrogen gas from water alone might be employed for domestic purposes, where heat and light is required.

BRIDGE ACROSS THE MISSISSIPPI.

We find in the *Keokuk Dispatch* of the 20th ultimo a communication from S. R. Curtis, Esq., principal Engineer of the Public Works in Iowa, in respect to building a bridge across the Mississippi river at Keokuk. We understand that Mr. Curtis is an accomplished Engineer: and the opinion and estimates of such an individual upon this subject at the present time will doubtless be acceptable to our readers.

Bridge over the Mississippi.—According to promise, Mr. Editor, I give you a plan and an estimate of a bridge over the Mississippi river at Keokuk. The great difficulty in such a work is to find a point where we can build without any inconvenience to navigation, and such points can only be found at the rapids, where navigation is obliged to pursue certain fixed channels that we may span with an arch so high that the tallest chimneys of the loftiest steamboat, even in high water, cannnot by any possibility interfere with the work. On the lower chain of the rapids, at the upper end of Keokuk, is the best place to erect a bridge, because:—1st. We have a good solid rock to build all our piers on. 2d. The banks or cliffs on both sides rise about 160 feet above the water, and therefore a bridge from bluff to bluff will always be at least 60 feet above the tallest chimney of boats. 3d. The channels pursued by navigation are easily spanned by wooden superstructure, or chain bridges, so that piers would be no obstruction to navigation, even in high water, which never rises more than five feet on the chains, and boats must pursue the channel. 4th. Stone for piers is found in great abundance, in the bluff on the west side of

the river. It is magnesian limestone, and sandstone easily worked, and superior for strength and durability. 5th. A bridge crossing at this point strikes the 'divide,' a great natural highway which is now an established stage mail route for more than 200 miles west, connecting at Council Bluffs with the direct emigrant route to California, and eastward the bridge would accommodate the general direction of the Cumberland road extending westward in a straight line.

The plan I would recommend is simply a succession of stone piers of requisite size, each 160 feet high, all connected with wooden superstructure similar to that erected on the National road at Zanesville, Ohio, planned by Prof. C. P. Buckingham. The piers should be strong enough to resist the moving ice, and long enough, measuring up and down the river, to admit of two wagon and two rail road tracks. Side walks should be erected so as to project outside of the piers.—Such piers would then be sufficient if they are constructed one hundred feet long at the base, and forty feet at the top; thirty feet thick at the base, and ten feet thick at the top.

ESTIMATE OF COST.

33 stone piers, 8960 perches masonry in each pier of 25 cubic feet, at $7 a p., $62,700 for each pier,	$2,069,760
5000 feet superstructure at $30 per ft. run	150,000
Preparing foundation of piers and superintending work,	150,000
Total cost of the work,	$2,367,760

The ferries on the Mississippi are often interrupted by wind and ice, and at best they delay travel and trade. A bridge would therefore draw in the business of hundreds of miles. The emigration to the west, the California emigration, and the droves of horses and beef cattle, and sheep, would seek a bridge at the expense of several days travel.

To secure a profit on the cost of such a work the future as well as the present necessities should be considered. The receipts necessary to justify such a work, would at first be inadequate, but a few years would augment them to a great surplus. Let me add an estimate of the requisite income to secure 8 per cent. annual dividends:

Annual repairs on superstructure at 10 per cent,	$15,000 00
Annual expense of toll gatherers, lights, &c., &c.,	2,000 00
Annual dividends on the investment at 8 per cent,	189,580 00
Gross annual income required to secure 8 per cent-dividends,	206,580 00
Gross daily income necessary to secure 8 per cent,	566 00
Gross income per hour, supposing tolls are received only for twelve hours of the day,	46 00

It may be considered impossible to realize such an income, but I fancy some of your readers who best understand the amount of crossing

which now exists, and would accumulate if such a bridge were made, will demonstrate the early prospect of realizing such an income.

Respectfully yours,

S. S. CURTIS.

COMPRESSED AIR LOCOMOTION ON COMMON ROADS.

The London *Mining Journal* says that a third trial was made a short time ago for testing the capabilities of Baron Von Rathen's compressed air locomotive for working the air expansively and which operated very well although there was one or two leaks which subtracted somewhat from the real power.—As it was, however, the carriage, weighing 3 tons, and carrying from 25 to 30 persons, started in good style, and kept pace with former experiments, as to time and distance: the motion was very regular, and the machinery stood well—the only casualty being the above leakage. The patentee considers he has now completely solved the problem of the practicability of employing compressed air in locomation, and regulating it as to distance, speed, load, nature of road, &c.—on which, with the greater or less perfection in the construction of the machinery, its success, of course, depends. He is prepared to show to mathematical demonstration, that he can embody sufficient power in this model air-carriage to carry 4½ tons, including carriage, 10 miles in one hour on common roads, or a train of 45 tons in the same time the same distance on a railroad; but if carried out on a large scale on the latter, he contends that the system would effect a saving of 75 per cent over the steam locomotive.

MANUFACTURE OF LINEN FABRICS BY STEAM.

New Inventions.—A London letter of the 31st August, published in the N. Y. *Commercial Advertiser*, has the following items:

A valuable invention has been made in Belgium. It is destined to effect as great a reform in the manufacture of linen cloths as the steam loom has made in that of wollens. It is nothing less than a steam loom for linen frabrics. All the ingenuity and perseverance of manufacturers have been tested to invent a machine of this kind; but the fabrics have been uniformly so poor that the machines have been thrown away and mannual labor again resorted to. The difficulty has been removed by the scientific skill of a Belgian engineer. A model of his machine, with specimens of the fabrics, has been exhibited at the fair at Ghent. The cloths are said to rival in firmness, fineness and smoothness, the best of those made by hand. If, on farther trial, it shall be found practicable on a large scale, a revolution will doubtless be effected in the linen industry of Belgium, which will have a powerful influence on the political condition of the country, one half of the population of Flanders living, in one way or another, on the profits of that industry.

LEWIS' PANORAMA OF THE MISSISSIPPI RIVER.

A painting, and panoramic representation of the Mississippi river, from New Orleans to the Falls of St. Anthony, have recently been completed by Mr. Henry Lewis, of this city.

The work is divided into two parts; one representing the river from St. Louis to the Falls, and the other, the lower section. The length of the picture of the upper Mississippi, is 825 yards; and of the lower, 500; whole length, 1,325 yards, by 12 feet in highth. This is ths largest picture, we imagine, that has ever been painted. We are informed that Banvard's celebrated painting of the Mississippi, is only 440 yards in length; Stockwell's, about 625 yards; and Pomarede's about the same in length as Stockwell's. We are informed that the idea of painting the Mississippi river for panoramic exhibition was conceived first by Mr. Lewis, and by him suggested to Banvard, who, according to report, has already realized a large fortune from the exhibition of his work. Mr. Lewis, like most men of genius, has had difficulties and disappointments to contend with. In a communication to us, he says: "I became connected with Mr. Stockwell in an agreement to paint this subject. Pecuniary difficulties, and a difference of opinion as to the best method of doing the work, finally broke our connexion." Subsequently he formed connexion with Mr. Pomarede, and this was also dissolved. "Finally," he says, "I started alone, in the month of May, 1848, to sketch the river. I had been up, the two summers previous, reconoitering the country, and making drawings from Fort Snelling to Prairie du Chien, and exploring the tributaries that empty into the Mississippi between these two points. I commenced painting on the 20th of September, and finished the panorama of the upper river by the 20th of June; that of the lower river was finished in September. I made the sketches from a small boat built for the purpose, and was forty-eight days in the trip."

As an artist, Mr. Lewis is self-instructed. He came to St. Louis about thirteen years ago—a youth, and a mechanic. He has recently departed on a tour to exhibit to the world the fruits of his genius and enterprise; and we think he cannot fail to realize a most brilliant reward.

Owing to our limited knowledge of the principles and rules to be observed in producing works of this nature, we cannot venture an opinion in regard to the merits of the design, or the correctness with which the author has executed the details of this painting. We went to see it in the same spirit that we are wont to ramble through the living forest, and beside the flowing river—with a heart open to receive the delightful impressions which the beauties and grandeur of nature never fail to impart to those who worship at her shrine; and we can say with truth, that we never enjoyed a higher degree of pleasure from the exhibition of any work of art that we have witnessed.